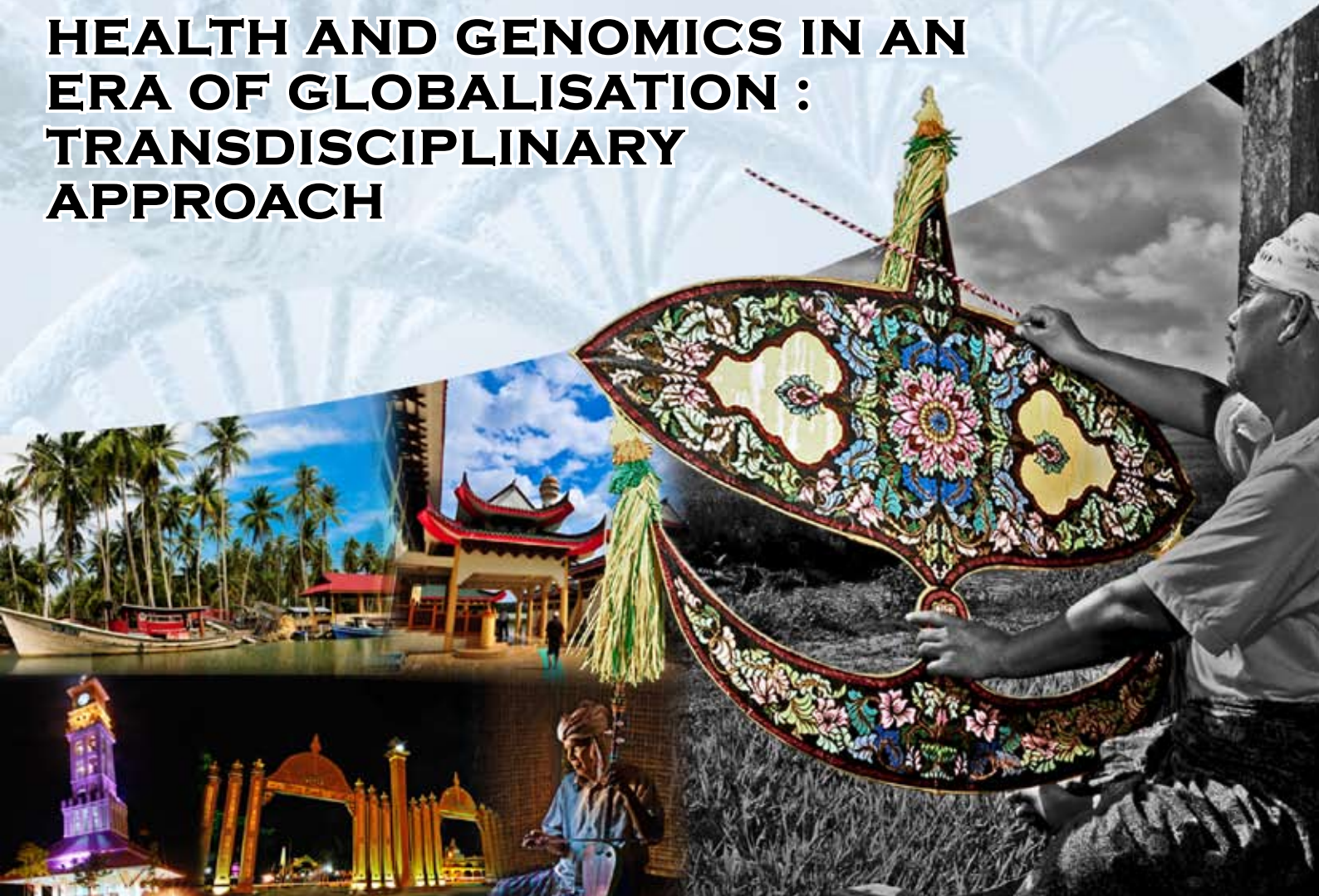


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INTERNATIONAL CONFERENCE ON MEDICAL & HEALTH SCIENCES



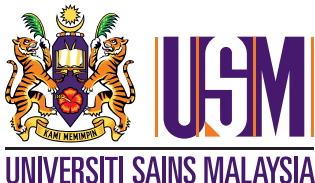
HEALTH AND GENOMICS IN AN ERA OF GLOBALISATION : TRANSDISCIPLINARY APPROACH



22-24 MAY 2013

RENAISSANCE HOTEL KOTA BHARU, KELANTAN, MALAYSIA

Organized by:



in collaboration with



COLLEGE OF
PATHOLOGISTS, ACADEMY
OF MEDICINE MALAYSIA



MALAYSIAN SOCIETY
OF HUMAN GENETICS
(MSHG)



INNOVATIVE RESEARCH
UNIVERSITY AUSTRALIA
(IRU)

International Conference on Medical & Health Sciences

in conjunction with

18th National Conference on Medical & Health Sciences (18th NCMHS)
Malaysian Society of Human Genetics Inaugural Conference (MSHG)
12th Annual Scientific Meeting, College of Pathologists, Academy of Medicine Malaysia (12th
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ABSTRACT BOOK

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Message from the Head of Scientific Committee

Dear friends and colleagues,

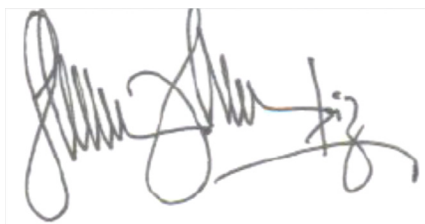
As head of the scientific program for the International Conference on Medical & Health Sciences 2013, it is my great pleasure to extend a warm welcome to all participants. The tremendous response we received for this conference provides a tremendous boost to our faith that far from being apathetic learners or teachers, the flame of scientific curiosity still burns bright in your souls, stimulating you to persevere in the pursuit of greater knowledge. Our theme, 'Health and Genomics in an Era of Globalisation: Transdisciplinary Approach', stems from a growing awareness that health and genomics are intricately intertwined; more often than not, disease is the result of interaction between genes and other risk factors.

The conference will present 11 plenary sessions and 14 symposiums on medical and health sciences delivered by more than 50 distinguished speakers. We are very fortunate to have Laureate Professor Dr John Aitken, the world renowned expert on fertility as our keynote speaker. We have also received more than 350 abstracts from within and outside Malaysia. The high quality of the abstracts have forced us to work extra hard in selecting the abstracts.

International Conference on Medical & Health Sciences is constantly growing and maturing over the years. Each year, we strive to incorporate fresh ideas into our scientific programs, with the aim of further enriching the overall conference experience. For 2013, we introduced the e-poster presentation for the participants to experience IT based presentation. We have 4 stimulating concurrent sessions rather than the usual 2 concurrent sessions. There will be also research collaboration discussion session between Malaysia Research Universities and Australian Innovative Research Universities as one of our special program. Another special program- Human Variome Project: the Malaysian node is also part of our effort to boost the interest of the participants.

Finally, I wish to thank all those involved in making this conference a success including the participants. Please do not forget to enjoy the unique untouchable Kota Bharu, savour the traditional Kelantanese cuisine and explore the fascinating local culture.

With warmest personal regards,



Associate Professor Dr Liza Sharmini Ahmad Tajudin
Head of Scientific Committee, ICMHS 2013

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INVITED SPEAKERS ABSTRACTS

DAY 1: 22ND MAY 2013

K Prathap Memorial Lecture

Molecular Techniques, Technologies and Testing

Adnan Mansoor

Recent advances in human genomics are redefining therapeutic and diagnostic strategies in clinical medicine. Completion of Human Genome project has set a solid foundation for the future of genomics in medical practice. Nucleic acid–based testing is becoming a critical and essential diagnostic tool not only in the setting of inherited genetic disease (e.g., cystic fibrosis and hemochromatosis) but in a wide variety of neoplastic and infectious processes. Molecular testing can help guide appropriate therapy by identifying specific therapeutic targets of several newly tailored drugs, thus pharmacogenomics is evolving as new frontier in the field of therapeutics. Molecular diagnostics also provides the necessary underpinnings for any successful application of gene therapy or biologic response modifiers. It offers a great tool for assessing disease prognosis and therapy response and detecting minimal residual disease. It is projected that by the year 2020, more than 15% of all laboratory testing will be based on DNA or RNA. There is ever changing stream of technologies, which can be used for the clinical benefit of our patients.

This sudden explosion of information, technology and research in the area of molecular medicine has created several challenges for clinical personal regarding medical decision making for patient management. Health care administrators and funding agencies are facing the challenges to find adequate and justified resources to implement these resourceful advance for enhancement of health care delivery in the communities. The ultimate goal should be to work together in an efficient way to effectively implement these advances in health care system.

This presentation will outline the basics of common and advanced techniques used in clinical medicine to enhance the diagnostic accuracy, modify risk stratification and monitor response to therapy. It will also summarize the available technologies and platforms in biomedical industry for application of these advanced molecular techniques in medicine. This lecture will sketch the diagnostic testing utilized in various clinical guidelines for effective management of various diseases. At completion, attendees will have an in depth understanding of the techniques, technologies and other methodologies available in 21st century to enhance clinical medicine. Such an understanding is essential to keep in touch with the cutting edge of medicine.

Keynote address

The paternal germ line: its role in infertility and the origins of human disease

John Aitken

Over the past 20 years there has been an exponential increase in the number of couples using Assisted Reproductive Technology (ART) to address their fertility problems. There are two major reasons for this trend. First of all, there has been a progressive increase in the age at which women have their first child. Unfortunately female fertility declines precipitously between the ages of 35-45 and even if conception does occur within this age range there is an increased risk of miscarriage and birth defects (such as Down syndrome). Unfortunately ART cannot help such patients; the incidence of live births following ART falls precipitously between the ages of 35 and 45, just as it does in the naturally conceived population. This failure of ART to compensate for advanced maternal age is simply a reflection of the fact that for aging women infertility is not due to the impaired fertilization of their oocytes but rather a decline in the potential of their oocytes to initiate embryonic development following fertilization; there is no known remedy for this problem. The other major reason why patients take recourse to ART is male infertility. Male infertility is notoriously common, affecting at least 1 in 20 men of reproductive age. Most infertile males produce sufficient numbers of sperm to initiate a pregnancy, however the fertilizing capacity of these cells has been lost for reasons that are still unclear but may involve the creation of oxidative stress. Because such functional defects impair fertilization, ART is a rational and effective method for addressing male infertility. However, such efficacy is achieved at a cost. Children conceived by ART are characterized by birth defects that are approximately twice as high as the naturally conceived population and, according to one recent study, such problems may be enhanced still further when ICSI (intracytoplasmic sperm injection) is the insemination technique employed. Furthermore, rates of miscarriage and birth defect in the offspring increase with paternal, as well as maternal, age. Thus, paternal age at the moment of conception is highly correlated with dominant genetic diseases (such as achondroplasia) and complex neurological conditions such as spontaneous schizophrenia or autism. Altogether there is no avoiding the conclusion that age is the enemy of reproduction. The current trend towards parenthood at the end of our reproductive life span cannot continue. Something has to change - and it cannot be the biology.

When should we test for vitamin D deficiency?

Robert Hawkins

There has been increasing interest in recent years in vitamin D and its measurement. The speculated role for vitamin D has expanded far beyond its historical association with bone and calcium homeostasis. The vitamin D receptor is nearly universally expressed in nucleated cells. About 3 percent of the human/mouse genome is under the control of 1,25-dihydroxyvitamin D, the active form of vitamin D. Furthermore, at least 10 tissues outside the kidney express 1 α -hydroxylase (CYP27B1), the enzyme responsible for converting vitamin D to its active form, and therefore the active hormone can be generated in an auto or paracrine way. Hence the vitamin D-VDR system resembles that of other ligands of nuclear receptors, such as thyroid hormone. A putative role for vitamin D in cancer, heart disease and other conditions is thus not unreasonable.

This lecture will describe the metabolism of vitamin D and summarize the epidemiological studies linking extra-skeletal illnesses with low vitamin D concentrations. Studies on the prevalence of low vitamin D concentrations in South East Asia will be presented along with the controversy regarding the definition of vitamin D deficiency. The talk will end with a discussion when and in whom vitamin D should be measured.

Practical approach in intra-operative consultation of lesions of the central nervous system

Fauziah Kassim

Intra-operative consultation is undoubtedly one of the most challenging tasks for a histopathologist. For lesions of the central nervous system the intra-operative diagnosis plays a key role in the immediate management of patients as it guides the surgeon with regards to the type and extent of subsequent operative procedure. Therefore intra-operative diagnosis requires close correlation of the clinical, radiological and histological or cytological features as well as knowledge of pathologic entities and their common locations.

Frozen section or cytologic preparation are used during intra-operative consultation for assessment of specimen adequacy and provision of preliminary diagnosis. These techniques have their own strengths and limitations and therefore they are particularly useful when used in combination.

BRCA2 Mutations in Breast Cancer – An opportunity for development of a database for genetic diseases in Brunei Darussalam

Mas Rina Wati Haji Abdul Hamid

This paper attempts to explore the types of genetic diseases that occur in the Brunei population. Data from a study on determination of mutations in *BRCA2* in breast cancer in the Brunei population will be presented. Several index cases of breast cancer at the Brunei Cancer Centre in Brunei were examined for mutations in *BRCA2* gene. Data including family history, age, gender, race, diagnosis, types of breast cancer and treatment will be presented. Laboratory analysis including PCR and direct sequencing were performed to determine mutations in *BRCA2*. Types of mutations in *BRCA2* and their significance in breast cancer in Brunei at this stage will be presented. The significance of this study towards developing a database for genetic diseases in Brunei Darussalam and Brunei's preparedness to be involved in the Human Variome Project will be discussed.

Molecular Characterization of Malaysian Obese Attributes, towards complementing Malaysian Human Variome Database

Atif Amin Baig

Obesity; a hereditary disorder has been a public health issue globally with its significant contribution towards increasing the morbidity and mortality to many of the metabolic disorders. The pandemic of obesity affecting multi-ethnic population today has adverse psychosocial effect and is a burden to the healthcare cost of the country. The National Health Morbidity Survey in Malaysia in 1996 and 2006 revealed that prevalence of overweight in adults increased from 16.6% to 29.1% and obesity from 4.4% to 14%, respectively. Two previous surveys revealed an increase in prevalence from 1 in 5 to 1 in 4, overweight and obese children aged 6-12 years in Peninsular Malaysia, respectively. The status of genetic constituent of obesity in a population is useful to predict the risk of health of the given population. To date no study has been done to analyze the molecular characteristics and variation in the obesity related genes in Malaysian population and their correlation with the other genes. There is a need of studying the obesity related genes in multiethnic and multicultural Malaysian population to predict the health risk and to improve the quality of life in Malaysian population. The data from such study will help in modulating a national strategy and a database to help in understanding and developing a strategy for decreasing the obesity in a progressing country like Malaysia. Considering the geographical position of Malaysia, the genetic data of the obese attributes from Malaysian population curated to Malaysian Human Variome Project (MHVP) database will highly complement the HapMap database, Thai Mutation database and Singaporean Variome Project.

Parkinson's Disease– uncovering genetic diversity in disease susceptibility

Azlina Ahmad Annuar

Parkinson's Disease (PD) is a progressive neurodegenerative disease which affects the control of movement. Recently, genome-wide association studies have highlighted several candidate genes in the development of this disease. Out of these, the Leucine-Rich Repeat Kinase 2 (LRRK2) gene has been extensively studied. Interestingly, whilst many variants have been identified in this gene, some variants are only present in select populations, and there is an ongoing debate as to the effect of these variants on the risk of developing PD. Our lab has been involved in evaluating these variants in a Malaysian cohort of PD, including investigating the role of other loci. Our studies indicate the value of testing the role of published variants in various populations to contribute to the diversity of the genetic data represented in the Human Variome Project.

The hunt for the Human Neural Tube Defects gene(s)

Noraishah Mydin Abdul Aziz

Neural tube defects (NTDs) are the leading cause of central nervous system malformation in humans, responsible for traumatic consequences in affected individuals and their families. NTDs are defects which are multifactorial, influenced by both genetics and environment. The search for the causative factor(s) of NTDs is further complicated by the lack of large families with Mendelian inheritance and the high degree of heterogeneity between unrelated sporadic cases. Although recommendation of folate intake has been the norm for women planning pregnancies for the past 20 years, NTDs still occur worldwide. We are determining the causative genes in patients with NTDs by examining the coding region of non-syndromic spina bifida using an exome approach. In humans, genetic aetiologies for NTDs were first identified 30 years ago, when it was shown that the family members of a person with an NTD have an increased risk (from 2-5%) of having an NTD themselves. Candidate genes studied in human NTDs have been based on biochemical and developmental pathways, mouse models and genes identified from positional cloning. For example, NTDs have been linked to several genes in the folate-homocysteine metabolic axis, consistent with epidemiological evidence that between 30-70% of NTDs can be prevented by prenatal folate. These genes include FOLBP1, 5-methyltetrahydrofolate-homocysteine S-methyltransferase (MTHFR), 5-methyltetrahydrofolate-homocysteine S-methyltransferase (MTR), methionine synthase reductase, (MTRR), nitric oxide synthase-3 (NOS3), dihydrofolatereductase (DHFR), glutamate carboxypeptidase II (GCP-II), & reduced folate carrier-1(RFC-1). Concurrent with exome sequencing in identifying candidate gene of NTDs, we will be focus on Ephs and ephrins gene expression in NTDs patients and their parents. Ephs and ephrins have been shown to be involved in adhesion and fusion especially during the neural tube development. Mouse studies by Abdul-Aziz et al. (2009) showed the prominent roles of EphA candidates during spinal neural tube adhesion and fusion as the genes EphA2 and EphA4 were found to be specifically and spatio-temporally expressed during the final closure steps of the spinal neural tube. Subsequently, further work on the EphA2 and EphA4 knockout mice showed both genes play a compensatory role to each other. The cumulative data on the EPHs and its ligands EFNAs and their role in neural tube closure highly supports these candidates as the human spina bifida orthologue.

**INVITED SPEAKERS ABSTRACTS
DAY 2: 23RD MAY 2013**

The Future of Medical Genetics

Michael A. Patton

Medical genetics is one of the newest specialities in medicine. Although medical genetics has taken the lead in developing genetic technology in clinical practice, this may become increasingly difficult as genetics goes “mainstream” and is incorporated in the different specialities. Medical genetics will need to evolve and take the lead in translational research and in the development of treatment for single gene disorders. It will also continue to have an important role in the provision of undergraduate and postgraduate teaching. Many of the advances can be predicted to be technology driven and the cost of genetic testing will fall rapidly. The impact of next generation sequencing will change many areas of diagnosis. One area will be in prenatal testing on a maternal blood sample by free fetal DNA. Another will be the provision of cancer screening by looking for oncogene mRNA in an annual blood sample. With more accurate prediction of genetic risk there will be a need for lifestyle counselling and personalised medicine. The understanding of balance between the genetic background and disease could learn much from the Eastern concepts of health which focus on balance (Ying/Yang) and the recognition that the individual is as important as the disease in determining treatment and outcome.

Molecular genetics of migraine; Implications for therapeutic development

Lyn Griffiths

Migraine is a severe neurological disorder that affects a significant proportion of the population. Prevalence estimates for the disorder vary between 12 and 25% depending on the population studied. The disorder has a significant genetic component showing high levels of familial aggregation. Although a number of genes involved in a rare and severe sub-type of migraine, termed familial hemiplegic migraine have been identified, the number and identity of all the genes involved in the more common types of migraine have yet to be defined. Genetic linkage and GWAS studies have implicated a number of genomic regions including on chromosomes 1, 4, 11, 19 and the X chromosome and several susceptibility variants have been implicated in the disorder. Neurotransmitter pathways have been the main focus of studies investigating the molecular mechanisms of the disorder. However vascular and hormonal triggers disturbances also occur in migraineurs, as highlighted by alterations in cerebral blood flow and hormonal triggers of migraine, particularly in women and hence factors affecting these functions may also be involved. This presentation will focus on migraine gene studies in our laboratory, including recent GWAS results, as well as studies implicating hormone receptor genes and MTHFR gene variants. In addition an overview of results from two recently completed clinical trials that involved genetic profiling in conjunction with a nutraceutical therapeutic treatment will be presented. These clinical trial results are very promising and highlight the potential importance of pharmacogenetic interventions in this disorder

Association of MTHFR and ADRA2A Gene Polymorphisms With Reduction in Weight Following Antipsychotic Switching to Aripiprazole or Ziprasidone

Zahurin Mohamed

Weight gain as a side effect of antipsychotics (APs) treatment causes not only health problems but also psychological trauma to schizophrenia patients leading to discontinuation of AP and symptoms relapse in the patients. Various genetic polymorphisms have been identified to be associated with AP-induced weight gain. We want to determine if the same polymorphisms would show association with weight reduction in patients who are switched to aripiprazole or ziprasidone.

A total of 128 schizophrenia patients were recruited. The patients have at least one metabolic abnormality as listed in the MS criteria and have been on at least one year AP treatment, were switched to either aripiprazole or ziprasidone. Their DNA was genotyped and their weight was recorded for 6 months.

After 6 months of switching, patients with the risk allele of ADRA2A rs1800544 (CC+CG [-0.75 ± 3.28 kg] vs. GG [-4.24 ± 4.75 kg], $p= 0.011$) and of MTHFR rs1801131 (AA [-0.80 ± 4.34 kg] vs. AC+CC [-3.80 ± 3.71 kg], $p= 0.028$) showed significant mean weight reduction, more so in those receiving ziprasidone.

This study showed that those with the GG genotype of ADRA2A rs1800544 and carriers of the C allele of MTHFR rs1801131 are associated with mean weight loss in our Malaysian schizophrenia patients who were switched to either aripiprazole or ziprasidone.

Ethics in Medical Genetics and Biotechnology: An Islamic Perspective

Aida Ibrahim M. Al Aqeel

We are at a time of unprecedented increase in knowledge of rapidly changing technology. Such biotechnology especially when it involves human subjects raises complex ethical, legal, social and religious issues. Medical genetics and biotechnological advances will only be acceptable if their application is carried out ethically, with due regard to autonomy, justice, education and the beliefs and resources of each nation and community. Islam is a religion which encompasses the secular with the spiritual, the mundane with the celestial and hence forms the basis of the ethical, moral and even juridical attitudes and laws towards any problem or situation. Islamic teachings carry a great deal of instructions for scientific advances, health promotion and disease prevention including hereditary and genetic disorders, therefore we will discuss how these teachings play an important role in the diagnostic, management, biotechnical advances, and preventive measures including: genomic research; population genetic screening, including premarital screening, pre-implantation genetic diagnosis; assisted reproduction technology; stem cell therapy, new discoveries and genetic counselling.

Genetics of G6PD and Thalassemia in Orang Asli: pharmacogenetic opportunity

Endom Ismail

Peninsular Malaysia's Orang Asli is well known as a unique population among others and divided into three sub-groups namely Negrito, Senoi and Proto Malay. Beside their distinctive physical, social and economic background, they are becoming the most sought groups for genetic study. As their genetic origin and migration pattern was not fully known, common genetic disease that appear in this population is intriguing. Prevalent of Glucose -6 Phosphate Dehydrogenase (G6PD) deficiency, hemoglobinopathies and thalassemia is starting to shed some light into the composition of genetic pool for this population. All three genetic conditions have proved the high allele homozygosity found in Orang Asli. Therefore, knowledge into Orang Asli genetic pool makes them the main model for healthcare opportunity in explaining why this population survived the test of modern lifestyle and what makes them less prone to non-communicable diseases while exposed some communicable ones.

A genomic approach towards understanding autism

Pornprot Limprasert

Autism spectrum disorder (ASD) includes a group of neurodevelopmental disorders characterized by impairments in three domains-social interactions, communication, and repetitive behavior and interests. Approximately 90-95% of autistic cases are classified as "idiopathic" and the main causes are genetic or environmental or a combination of both. Previous studies have found several genes associated with ASD on different chromosomes. Currently, chromosomal microarray (CMA) is highly recommended as a first-tier clinical diagnostic test for individuals with unexplained developmental delay/intellectual disability (DD/ID), autism spectrum disorders (ASD), or multiple congenital anomalies (MCA). The CMA offers a much higher diagnostic yield (15%-20%) for genetic testing of individuals with unexplained DD/ID, ASD, or MCA than a G-banded chromosome study. In addition, several studies have confirmed the contribution of rare de novo copy number variations to the risk for ASD. High-throughput sequencing technologies are powerful and promising tools for whole-genome sequencing and genome-wide variation discovery, particularly exome sequencing. Exome sequencing is one of the test that has been used in medical genetic research. Recently, exome sequencing has been used to identify genetic causes of ASD. Together, microarray and exome sequencing offer researchers the opportunity to screen and detect new variants in several autism susceptibility genes and their nearby sequences. These findings can then be used to study other autistic families, and ultimately elucidate some pathogenesis of autism, leading to new paths for improved prevention and treatment.

The New Era of Endometriosis

Mohd Shukri Othman

Endometriosis is an enigmatic disease first diagnosed in 1860. It is characterized by the presence of endometrial glands and stroma outside of the uterine cavity. It is commonly presents with dysmenorrhea, dyspareunia, and infertility. Advancement in the field of endometriosis is rather slow despite all the researches thus far. However the investigations into the epidemiology of endometriosis, its pathogenesis, medical therapies aimed at improving pelvic pain and/or decreasing lesion size, and treatment of endometriosis-associated infertility have shown promise in the advancement of understanding this disease and treating women with this disease. In this new era, the advances in molecular and clinical sciences have offered a wide range of modalities for treatment of endometriosis

Mucosal Genetic Immunization for Cholera through Microsphere-based Oral Carriers

Rozita Rosli

The portals of entry for pathogens include the mucous membranes of the respiratory, gastrointestinal and urogenital tracts. About 90% of human infections is believed to occur at mucosal sites. Hence, targeting the mucosal sites where pathogens invade remains an attractive strategy for immunization. Cholera is an enteric disease, caused by pathogenic events following ingestion of food and water which have been contaminated with the causative agent, *Vibrio cholera*. A previously constructed DNA vaccine, pVax-ctxB which consists of the cholera enterotoxin B subunit gene cloned into a mammalian expression plasmid DNA vector designed for DNA vaccine development was used in this study. Since oral regimens for cholera vaccination remain to be the practical approach in mass immunization strategies, especially in cases of epidemic outbreaks or in the populations where cholera is endemic, the need exists for studies on oral genetic immunization strategies. Polymeric carriers in the form of cellulose acetate phthalate (CAP) and alginate (ALG) microspheres were used for the encapsulation of plasmid DNA for oral mucosal immunization. Access into the intestinal mucosa by the expression vectors carrying the gene-coding sequences, either for the ctx-B immunostimulatory antigen or the green fluorescent protein (GFP), delivered from both types of microsphere carriers were examined in orally immunized BALB/c mice. Demonstration of transgene protein expression and IgA antibody responses at local mucosal sites suggest immunological response to oral DNA vaccination formulated within microsphere carriers. This provides an alternative approach for delivery of antigens into intestinal cells or to the cells of the mucosal system networks.

Molecular mechanisms of cell proliferation in endometriosis

Liza Noordin

Endometriosis is a common estrogen-dependent disorder that affects nearly 1 in 7 women of reproductive age. The disease is characterised by the presence outside of the uterus of functioning glands and stroma. The classic “retrograde menstruation” theory has been widely accepted as the starting event for the extra-uterine localization of cells. Ectopic dissemination of endometrial cells and their subsequent implantation are the mechanisms involved in the development of endometriosis. Despite extensive investigations, the process of adherence and proliferation of endometriotic cells is not fully understood. Research on the pathogenesis of endometriosis is currently focused on molecular signaling pathways. Signaling pathways are critical mediators of cellular processes in response to external stimuli, which ultimately regulate gene expression and cellular processes such as proliferation.

We used immortalized human endometriotic epithelial cells, 12-z as a model for cell growth and proliferation. Cell viability was assessed by the [(3-(4, 5-Dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide] (MTT) assay method. We determined estradiol and oxidant (H_2O_2) significantly induced 12-z cell proliferation. The proliferation was enhanced when cells were treated with both estradiol and H_2O_2 . An altered gene expression was also determined in this cell line where estrogen biosynthesis enzymes that include aromatase, 17β -HSD Type 1, AKR1C3, PGE_2 and COX-2 were significantly upregulated by those compounds. A ‘*positive feedback loop*’ for estradiol synthesis in 12-z cell was demonstrated in this study. The mechanism of cell proliferation involved MAPK/ERK1/2 pathways. The identification of signalling pathways and factors activation may lead to valuable therapeutic approaches for limiting disease progression.

Compatibility testing for renal transplantation

Jasbir Singh Dhaliwal

Renal pre-transplant testing identifies the presence of donor specific antibodies and is carried out to evaluate rejection risk. Anti HLA antibodies arise because of previous transplants, pregnancy or transfusion and it is these antibodies that threaten graft survival. Non anti-HLA antibody has sometimes been implicated in rejection but the major cause of antibody mediated rejection is anti-HLA antibody. In the work-up for a live related transplant, both the donor and recipient are HLA typed by molecular methods. Although HLA typing is usually carried out for both Class I (HLA-A, HLA-B, HLA-C) and Class II (HLA-DRB1, HLA-DQB1) loci, there is evidence now that another HLA Class II locus, HLA-DP may also contribute to rejection. Antibody detection has improved tremendously with fluorescent bead technology which is extremely sensitive and useful for post transplant monitoring so that early formation of donor specific antibody can be detected. The careful monitoring of transplant patients can improve patient management.

Loop Amplification Method (LAMP) for the Detection of Pathogens

Maizan Mohamed

A rapid and sensitive method for the detection of pathogens would help both in preventing the spread of outbreaks and in clinical diagnosis. LAMP has been reported to amplify DNA with high sensitivity, specificity and rapidity for the detection of pathogens. This method relies on autocycling strand displacement DNA synthesis performed by *Bst* DNA polymerase where it requires a set of three specially designed primers, termed inner and outer primers. The reaction is conducted under isothermal condition (60–65 °C for 60 min) using a simple and inexpensive heating block, thereby eliminating the need for sophisticated equipments such as thermal cycler. This method also provides highly efficient DNA amplification (up to 10^9 – 10^{10} times in 15–60 min), which is much higher than that generated by conventional PCR. The products can be visualised directly by turbidity due to the accumulation of magnesium-pyrophosphate by-product. This can be further enhanced by the addition of fluorescent dye, such as Calcein or SYBR Green where the positive result indicates by green fluorescence and negative by orange colour. Positive LAMP products also exhibit a ladder-like pattern of bands when observed by gel electrophoresis. For these reasons, LAMP method offers a sensitive, rapid, and simple method to perform and it has emerged as a powerful tool for rapid genetic diagnosis of infectious diseases, especially in resource-limited settings.

Restorative Dentistry Research in USM

Adam Husein

According to the Journal of Prosthetic Dentistry, the discipline of restorative dentistry includes cardiology, pulp pathology, periodontics, dental materials, occlusion and temporomandibular disorders, prosthodontics and implant dentistry. In USM, many researchers at the School of Dental Sciences are involved in this field. Some of their studies are in collaboration with other schools such as School of Material Sciences, School of Engineering and others. The focus of the research includes the development of biomaterials such as dental ceramic, nanocomposite and nanohydroxyapatite sealer, clinical research and others. The end aim of the material research is for potential commercialisation. Clinical research involves new techniques in patient care, material testing, trials and others. At present with the development in stem cell and tissue engineering technologies, USM researchers have also ventured into those fields. Tissue regeneration with potential use for patient care is an area of great interest for many researchers. The aim of this presentation is to highlight areas of research in the field of restorative dentistry which are being conducted in USM.

Trends in Periodontal Research

Siti Lailatul Akmar

Chronic periodontitis is the most common form of periodontal disease that consisting of chronic inflammation of the periodontal tissues that is caused by accumulation of dental plaque. Gingival recession is a common clinical problem that can result in hypersensitivity, pain, root caries and esthetic concerns. In the worst scenario, it will lead to tooth mobility and eventually tooth loss. Huge numbers of papers are published each year on recent and future regenerative technologies with their primary aim to restore those parts of the tooth-supporting structures that have been lost. Procedures aimed at restoring lost periodontal tissues favor the creation of new attachment, including the formation of a new periodontal ligament with its fibers inserting in newly formed cementum and alveolar bone. Guided tissue regeneration (GTR) using barrier-membrane technologies involve the placement of a physical barrier membrane to enable the previous periodontitis-affected tooth root surface to be repopulated with cells from the periodontal ligament. Hard tissues graft for regenerative approaches is the assumption that these materials may serve as a scaffold for bone formation (osteoconduction) and contain the bone-forming cells (osteogenesis) or bone-inductive substances (osteinduction). Other approaches such as growth factors and other cell-stimulating proteins, and gene-delivery approaches that promote cell replication, differentiation, matrix biosynthesis and angiogenesis has led to significant new knowledge in periodontal regeneration.

Glucose-6-phosphate dehydrogenase (G6PD) deficiency and susceptibility to Dengue Virus Type 2 (DENV2) infection

Narazah Mohd Yusoff

Monocytes from G6PD-deficient patients show an increased susceptibility to DENV-2 infection with higher replication ability than those from normal controls. No studies have been carried out to elucidate the molecular mechanism behind this observation. In this study, monocytes from G6PD-deficient individuals were infected with DENV-2 and infection rate, levels of oxidative species, nitric oxide (NO), superoxide anions (O₂⁻), and oxidative stress were determined and compared with normal controls. Monocytes from G6PD-deficient individuals exhibited significantly higher infection rates compared to normal controls. To undermine the reason for this enhanced susceptibility, the production of NO and O₂⁻ in the monocytes of individuals with G6PD deficiency was investigated and compared with normal controls. The levels of NO and O₂⁻ were significantly lower in the monocytes of individuals with G6PD deficiency compared with normal controls. Furthermore, the overall oxidative stress in individuals with G6PD deficiency was significantly higher. Correlation studies between viral replication and oxidative state of monocytes further confirmed these findings. Altered redox state of DENV-infected monocytes from G6PD-deficient individuals appears to augment viral replication in these cells. DENV-infected G6PD-deficient individuals may contain higher viral titers, which may be significant in enhanced virus transmission. Granulocyte dysfunction and higher viral loads in G6PD-deficient individuals may result in severe form of dengue infection rendering those with G6PD deficiency being more susceptible to DENV2 infection compared to normal individuals. The future directions are to carry out similar studies in other pathologically relevant cells types such as dendritic cells and megakaryocytes and to carry out similar studies with DENV1, DENV3, and DENV4.

Chromosomal Microarray in Clinical Diagnostic Laboratory

Zubaidah Zakaria

Chromosomal microarray (CMA) has been made available in the recent years to detect the presence of submicroscopic aberrations at multiple loci and is currently being used as a first tier testing for individuals with unexplained developmental delay/intellectual disability (DD/ID), autism spectrum disorders (ASD) or multiple congenital anomalies (MCA). This platform is now being extended to cancer diagnostic testing as a complimentary tool for better disease stratification and treatment.

We have undertaken two research projects involving clinical genetics and leukaemia cases referred by clinical genetics and clinical haematologists respectively by Array Comparative Genomic Hybridisation (aCGH) platform. 49 (49%) were identified to have unique microdeletion and/or microduplication on their chromosome(s) with aberration sizes ranging from 1.0 to 7.5 Mbp in patients with unexplained syndromic features. 30 genes have been identified to be associated with known syndromes.

Among the 170 bone marrow samples, we found 50% of cases had unique microdeletion and/or microduplication on their chromosome(s) with aberration sizes ranging from 0.5 to 100.0 Mbp, whereas the rest of the cases (50%) showed normal results. Arrangements of CNVs throughout their genomes have raised our concern regarding their involvement in the pathogenesis of the diseases.

Thus, we conclude that chromosomal microarray technology will be a useful tool in clinical diagnostic laboratory for a wide variety of disease spectrum disorders, including cancer and haematological malignancies. This technology has opened up the potential to further identify genes involved in the pathogenesis of disease, with detection of many previously unidentified chromosomal changes.

Breast cancer screening: How can we get women to come?

Nik Munirah Nik Mahdi

In Malaysia where three major ethnic groups are concerned, namely the Malays, Chinese and Indians, the Malays make up the majority. It is very difficult to get the women to come forth for breast screening because of myriads of reasons.

Education is by far the key to improve the number of women to come for breast screening. Awareness about breast cancer incidence, breast cancer risk factors, its signs and symptoms and methods of breast cancer screening should be address on a timely basis to the population at large. Ways of doing this would vary but each has its own strength and benefits, for instance breast cancer seminars, workshop, forum, conference, road shows to schools and remote areas including villages, etc.

Any subsidised breast screening programme available in the country, for example LPPKN (Lembaga Penduduk dan Pembangunan Keluarga Negara) and College of Radiology (CoR) and how a women could have access to this should be announce from time to time.

Breast screening services that are offered namely mammography and complementary ultrasound should be efficient and fast. A walk-in service for breast cancer screening is one of the best methods to get more women to come, i.e. a woman does not need to have an appointment to have a mammogram. A one-stop breast screening and biopsy is the preferred way and most ideal to make sure we do not lose the patient after the mammogram.

Difficulty faced by clinicians in treating breast cancer in a traditionally influenced society

Nur Aishah Mohd Taib

Breast cancer is the commonest cancer in Malaysia and prognosis is dependent on the stage of disease. Survival of women has improved over the years, with earlier presentation and more effective treatment. However, advanced breast cancer presentation is still a common occurrence in Malaysia. There are many reasons for late presentation of breast cancer, including poor recognition of symptoms, non-disclosure, delayed diagnosis, non-adherence to treatment, financial issues and lack of support. Clinicians treating breast cancer have challenges in convincing patients to undergo biopsies and treatment. One reasons for non-adherence could be the collision of values of both parties. Embracing the values of patients and having skills which support decision-making may be tools needed to face these challenges. Communication skills of the healthcare provider may modulate the experience of women with breast cancer. Garnering support from significant others also plays a major role in overcoming the challenges in managing breast cancer in a traditionally influenced society. This talk will focus on the issues aforementioned, as well as highlight known interventions that have improved non-adherence to treatment.

Countering negative perception to adjuvant therapy

Yip Cheng Har

Adjuvant therapy refers to further treatment that is required after surgery for breast cancer. This will include adjuvant radiotherapy, chemotherapy, hormone therapy and targeted therapy. The indications for each of these procedures are clearly stated in the Clinical Practice Guidelines for the Management of Breast Cancer 2010, when there is strong evidence that addition of such therapy will improve the survival of these patients. Counseling for adjuvant therapy is the responsibility of oncologists, but surgeons are the ones who see the patient after the surgery and review the histopathology report. Hence surgeons have to convince patients that adjuvant therapy is necessary, and explain the reasons why, before referring them to the oncologist. The need for adjuvant therapy depends on the histopathology report, and hence an adequate pathology report giving all the criteria for adjuvant therapy is important. These include tumour size, tumour grade, lymph node status, molecular markers ie ER PR and HER2, margin status and presence or absence of lymphovascular invasion. Convincing patients of the need for surgery is sometimes easier than convincing them of the need for adjuvant therapy, especially chemotherapy. Most patients have a very negative perception of chemotherapy, with stories from friends and relatives that chemotherapy rather than the disease cause them to die. Usually such stories are without basis. Although not so extreme, such misinformation also applies to radiotherapy and hormone therapy. To dispel such myths, patient education and support is important. Using a prognostic model, such as the adjuvantonline prognostic tool, with easily understood charts on the improvement in survival that one gets from systemic treatment, may help women to make a decision on adjuvant therapy. Peer support, ie support from a breast cancer survivor, who has undergone adjuvant therapy, will give the best evidence that side effects from adjuvant therapy are temporary and it is possible to return to a normal life, and even marry and have children after adjuvant chemotherapy and radiotherapy for those who are young at the time of diagnosis and treatment.

HER2 testing-Malaysian experience

Noraidah Masir

HER2 protein which is encoded by the HER2 / erbB2 gene is normally expressed on the cell surface in a variety of tissue types, including breast and gastric epithelium. The protein enhances kinase-mediated activation of downstream signalling pathways that activate cell proliferation and migration. Amplification of the HER2 gene or over-expression of its encoded protein in breast cancer is associated with significantly shortened disease-free and overall survival. Its status also predicts outcomes in breast cancer, including response to targeted treatment. Therefore reliable and reproducible HER2 testing and accurate interpretation is essential to ensure patients derive clinical benefit from HER2-directed molecular therapies. Current HER2 testing methodologies include immunohistochemical methods for protein expression and in situ hybridisation techniques for gene status, performed on formalin-fixed, paraffin-embedded breast cancer tissues. In Malaysia immunohistochemistry is routinely performed on invasive breast cancer biopsies and the results are validated by in situ hybridisation techniques when indicated.

Stem cells through the eyes of a haematologist

John EJ Rasko AO

Much of our understanding of adult stem cell biology has been derived from discoveries made in haemopoiesis. Although it has been known since the 1960s that progenitor cells circulate, it was not until the 1980's that mobilisation of haemopoietic stem/progenitor cells for transplantation entered clinical practice. Mobilisation provides haemopoietic rescue following high dose chemoradiotherapy or bone marrow failure; and the graft versus tumour effect provides additional disease control in allogeneic transplantations. New approaches to mobilisation rely on our understanding of the specific microenvironment or 'niche' surrounding stem cells and their malignant counterparts. We coined the term "nichotherapy" in recognition of the importance of niche biology (2). In addition to the familiar components of the niche, we have discovered that haemopoietic stem cells are capable of responding to elastic stimuli and glycosylation (3). Nichotherapy comprises existing and emerging haemopoietic and other stem cell mobilization and expansion technologies as well as experimental attempts to chemosensitize leukemia and cancer stem cells, and to repair or remodel damaged bone marrow.

Genetic Testing in Gastrointestinal Cancer

Mazhar Rishi

Research over the past two decades has uncovered new information regarding the genetic and molecular factors underlying the development of gastric and colorectal cancers. This growing understanding of these tumors has led to the emergence of clinically detectable markers for use in genetic screening, prognosis, and prediction of chemotherapeutic sensitivity. This talk will address the current use of innovative markers in managing patients with these cancers.

Molecular Advances in Predicting Prognosis in Breast Carcinoma

Mazhar Rishi

Accumulating discoveries of the biological mechanisms that control cell growth and differentiation, and developments in the clinical management of breast cancer, continue to expand the role of molecular technology in diagnostic histopathology. This talk will provide an overview of the molecular classification of breast cancer and its clinical implications. It will review the uses and limitations of currently available molecular prognostic tests including genome sequencing for patients with breast cancer.

Challenges of cervical cancer screening- a case for Malaysia

Nor Hayati Othman

Many developing countries including Malaysia will need to continue relying on cervical screening because HPV vaccination is expensive. Despite Malaysia offering Pap smears for free since 1995, only a small proportion of Malaysian women have been screened. Several factors may have contributed to this. We studied women with cervical cancer to determine whether they had had a Pap smear within the 3 years preceding to cancer development and their understanding of screening for this cancer. We observed most had not had a Pap smear within 3 years before cancer development. The percentage of patients who had had a Pap smear ranged from 0-12%. Level of education and the household income were strongly associated ($p < 0.05$) with knowledge and having had a Pap test. A large majority (95.9%) of the patients did not know the optimal interval for screening. The health care system of Malaysia is unequally dense, with rural states being underserved compared to the urban ones. If the screening coverage was to increase, the shortage of smear-readers would become increasingly apparent. Currently Malaysia is short of cyto-screeners and cytopathologists. We evaluated the use of Fourier Transform Infrared (FTIR) spectroscopy as a new tool for screening of cervical cancer in comparison with cervical cytology. FTIR spectroscopy could differentiate Normal from Abnormal cervical cells in the 800 samples we examined. The sensitivity was 85%, specificity 91%, positive predictive value 19.5% and negative predictive value of 99.5%. We recently embarked on self sampling to overcome the problem of 'shyness' among women to have their cervical samples taken by health professionals. Preliminary results show very encouraging results.

Potential collaborative research in Medical and Health with Universiti Sains Malaysia

Nor Hayati Othmaan

Kelantan is a conducive place to carry out research on health and diseases as it is a rapidly developing state in Malaysia. We see a range of diseases in developing countries such as infectious diseases and an increase in diseases prevalent in developed countries such as obesity and addiction. The Health Campus of USM is located in Kelantan, where the population is fairly homogenous [96% Malays], thus it is an ideal locality to study genetic basis of diseases as well as at clinical level or translating findings from bench to bedside. There are studies using biological/natural materials such as chitosan from crabs for wound management. We conduct research on the mechanisms of actions of the active compounds on certain diseases from natural biological materials and natural plants such as *Strobilanthes Crispus*, *Eurycoma longifolia*, sea creatures such as *Sticophus* species, fresh water fish such as *Channa striatus* (abundant in Malaysia) thus 'converting' indigenous alternative and complementary medicine to evidence-based medicine. Extracts of some of these natural chemical compounds and pharmaceutical products are in various phases of clinical trials. We also do significant number of research on natural products such as honey and other bee products which have been shown to maintain health and have effects on diseases. We also promote collaboration between the arts-based and the science-based researchers such as using music as a healing agent for certain chronic illnesses for example the use of '*Gamelan*' a classic musical instrument as means of therapy to improve motor power in children with cerebral palsy.

Microbiology and the Clinical Microbiologist in the 21st Century

Joan Faoagali

Microbes were first seen by Anton van Leeuwenhoek in 1675. He invented and used his own microscope. Previously there had been no observable proof that microbes existed. In the 18th Century the germ theory was reluctantly accepted over the prevailing miasma, morality and non-microbiological theories of infectious disease. The microscope, Koch's use of dyes and cultures to demonstrate microbes and the confirmation of his Postulates along with Pasteur's discoveries and use of vaccines enabled the prevailing concepts of "spontaneous generation" of bacteria to be buried for ever. So many exciting microbiological discoveries over the past 200 years which are ongoing in the 21st Century.

The 20th Century has been described as the "Golden Age" of Microbiology. New microbes, new methods of detection, new infectious diseases and new treatments. But the Clinical (Medical) Microbiologist in the 21st Century is working in a new paradigm. It includes centralisation, automation, LEAN laboratories, privatisation, accreditation, cost recovery and fee for service. Research, reflection, clinical value, teaching and patient care are not currently directing practice. There are more meetings, fewer laboratories, less value adding, reduced medical school and training opportunities and more use of computers and remote access? Progress and the march of technology can not be ignored but should we be expanding microbiological centres of excellence rather than rationalising and restricting services?

Are we ready to recognise the causes of the next epidemic if our Medical Officers have not learnt about germs and our Medical Microbiologists have been replaced by automation and focused molecular tests? There is no crystal ball to provide answers but awareness and combined collaborative efforts between clinicians, pathologists, universities, public and private microbiology providers will ensure that microbiology services remain vibrant, relevant, reactive and ready to inform clinical practice. In the increasing complexity of 21st Century infectious diseases the clinical microbiologist must have an increasingly important role.

Difficult Organisms for the Clinical Microbiology Laboratory

Joan Faoagali

This will be an interactive session. A selection of recent isolates/clinical infectious problems will be presented from the medical microbiology laboratory perspective. Options and reasons for the selection of laboratory tests will be presented for comment and discussion.

Updates on Antimicrobial Resistance

Zubaidah Abdul Wahab

There has been a relentless increase in antimicrobial resistance in recent years. This resistance is seen in both gram-positive and gram-negative organisms and makes antimicrobials ineffective, resulting in treatment failure, prolonged illness, disability, greater risk of death and economic loss¹. Antimicrobial resistance is not a local problem but a national and global issue because antimicrobial resistance can spread between different hospital to hospital and countries or continents. World Health Organization (WHO) has identified antimicrobial resistance as one of the greatest threats to human health and the theme of World Health Day 2011 by WHO was antimicrobial resistance with a slogan entitled "Antimicrobial resistance: no action today, no cure tomorrow"³. Poor adherence to infection control and irrational antibiotic use promotes antimicrobial resistance. As well as widespread misuse of antibiotic treatment and prophylaxis for surgery.

3D structure of a host AAA-ATPase complex with a critical role in viral infection

Alan Munn

Vps4 is an AAA-family ATPase that mediates endosomal membrane protein sorting and is also a host factor hijacked by a diverse set of clinically important enveloped viruses, including HIV, Hepatitis B Virus, Epstein-Barr Virus, Paramyxoviruses, and Ebola Virus, to facilitate their egress and therefore a potential target for development of novel antivirals. We previously showed that mutation of a novel Vps4-specific β domain blocks assembly of Vps4 monomers into active oligomers. However, it remained unclear whether the β domain is directly involved in Vps4 assembly or if these mutations have general effects on protein folding. We have used negative stain electron microscopy and single particle analysis as well as a range of biophysical methods to determine the subunit stoichiometry and 3D structure of the Vps4 oligomer. Vps4 has 11-12 subunits arranged in two hexameric rings stacked in a tail-to-tail orientation. The β domain is well placed to mediate contact between rings. The β domain is likely to play a direct role in Vps4 assembly into an active oligomer. Because the β domain is critical for assembly but found only in Vps4 it may be a target for specific Vps4 inhibitors.

Natural Product Research for Cancer Prevention and Treatment

Nik Soriani Yaacob

Many problems associated with current cancer treatment options have hindered the overall therapeutic success rate. Although chemotherapy is the main treatment modality, it is faced with major drawbacks such as reduced drug efficacy, development of drug resistance in cancer cells and undesired side effects on noncancerous cells. More effective and more tolerable alternative drugs are desperately needed to replace or improve existing therapeutic options. Pharmacologic intervention can also help reduce the risk of developing cancer, inhibit or reverse carcinogenesis or prevent metastasis. Natural products have attracted much interest as potential chemopreventive agents and cancer therapeutics, in tandem with significant growth in natural product research as reflected by the increasing number of relevant Medline citations. This is not surprising as they serve as an important source of potential lead compounds suitable for pharmaceutical development. In vitro and in vivo studies have demonstrated the ability of natural compounds or phytochemicals to reduce oxidative stress and induce apoptosis of cancer or pre-cancerous cells. These natural products often exert pleiotropic effects on multiple targets of major signal transduction pathways that regulate gene expression, cell cycle progression, metabolism, proliferation and cell death. Their potential to modulate epigenetic mechanisms has also been reported. Preclinical studies, including those from our group, have also demonstrated that a number of natural products can work in synergy with chemotherapeutic drugs to increase the sensitivity of cancer cells and enhance tumour response to the drugs, improve survival rates and reduce toxicity to chemotherapy. In some cases, chemoresistance could be overcome via modulation of multidrug resistance proteins. However, low bioavailability of natural products is an important drawback for successful clinical response and potentially adverse side effects need to be considered. Although in vitro effects may not be directly extrapolated to clinical effects, the findings provide new opportunities for development of combination therapies for better clinical success.

Oxidative Stress, Antioxidant and Hypertension: Experimental Studies

K.N.S Sirajudeen

Free radicals are generated continuously in the cells during normal cellular metabolism. However excessive endogenous and exogenous free radicals are deleterious and induce tissue damage. Usually it will be prevented by the enzymatic and non-enzymatic antioxidants in our body by restricting the formation of free radicals, scavenging them or promoting their decomposition. An imbalance in the free radical generation and its neutralization by antioxidants leads to a condition called "Oxidative Stress".

Evidences indicated the role of oxidative stress in the development and complications of chronic illness such as cancer, diabetes, autoimmune disorders, cardiovascular and neurodegenerative diseases. Hypertension is a major risk factor for several cardiovascular diseases. It is a multifactorial, complex disorder with various interacting mechanisms contributing to its pathophysiology and involving many organ systems such as kidney, heart, brain and vessels. Among the various factors implicated in the pathogenesis of hypertension, oxidative stress has been suggested as an important factor associated with hypertension. However whether oxidative stress is a cause or consequence of hypertension is still debatable. Spontaneously hypertensive rats which are the established model of essential hypertension were used in our study to assess the oxidant-antioxidant level with regards to the age related changes, antioxidant supplementation and antihypertensive drug supplementation. The results indicate that along with the progression of hypertension there was an increased oxidant and reduced antioxidant capacity in SHR. The antioxidant supplementation in SHR reduced the rate of rise in systolic blood pressure (SBP) but the effect was transient. Antihypertensive drug treatment was not only reduces the SBP but it has an impact on the antioxidant system in SHR. Some of the antioxidant enzymes activities were altered as early as 2 weeks of age in SHR. Although the reason is unclear, since it was evident before the actual rise in SBP, it might be suggested that these alterations in some way contribute to the development of hypertension in SHR. Further studies are needed to understand precisely how these contribute to the rise in blood pressure.

Issues and Challenges in Measuring Antioxidant in Human Subject

Muhammad Ariff Mohd Hashim

Oxidation of lipid, nucleic acids or protein has been suggested to be involved in the etiology of several chronic diseases including cancer, cardiovascular disease, cataract, age-related macular degeneration and aging. Although oxidation reactions are crucial for life, they can also be damaging. The use of antioxidants is intensively studied, particularly as treatments for stroke, neurodegenerative diseases and for the prevention of diseases such as cancer and coronary heart disease. Antioxidants are classified into two broad divisions which is hydrophilic and hydrophobic. The different antioxidants are present at a wide range of concentrations in body fluids and tissues. The amount of protection provided by any one antioxidant will also depend on its concentration, its reactivity towards the particular reactive oxygen species and the status of the antioxidants with which it interacts. Biomarkers-based approaches for estimating exposure to certain antioxidants and biomarkers related to oxidation in particular β -carotene and other carotenoids, α -Tocopherol/Vitamin E, Vitamin C, selenium, zinc, transferrin, ferritin and a few others are discussed. However, as any other laboratory based assay methodological issues such as reproducibility, sensitivity, specificity, intra and inter-individual variability and establishment of reference ranges will be addressed.

Medical Genetics in Malaysia: Past, Present and the Next Generation

Zilfalil Alwi

When the Genetics Society of Malaysia was first established in 1994, most of its members were plant, microbial and animal geneticists. Less than a handful of its members were from human or medical genetics background. Eight years later as the world celebrates the successful completion of the Human Genome Project, more interest in the field of human and medical genetics has been generated in the country. An increasing number of local institutions of higher learning have started to offer courses in human genetics and scholarships to pursue postgraduate studies in related fields. The government's aim to develop Malaysia into a global Biotechnology hub has indirectly allowed those working in the field of human or medical genetics to benefit from the policy. With more medical genetics labs established in the country, there has been parallel improvement in patient care and less reliance on labs outside the country. With more research grants offered and improvement in lab facilities, the number of research into genetic diseases have increased and Malaysian researchers now have an opportunity to improve the quality of their research in the field of medical genetics. The future is to bring medical genetics into mainstream medicine and allow more patients to benefit from the rapid advances in this field. Producing world class research and recognition in the field of medical genetics needs to be in the future pipeline too. Hence the establishment of the Malaysian Society of Human Genetics marks a new milestone in the history of medical genetics in this country. With the new generation of human and medical geneticists returning from their training and beginning their career, they provide hope for the country and a bright future to the field of Medical Genetics.

Mesenchymal stem cells and the extracellular matrix as mediators of stem cell fate decisions

Larisa Haupt

Mesenchymal stem cells (MSCs) are multipotent stem cells that can differentiate into a variety of cell types including osteoblasts (bone), myocytes (heart), adipocytes (fat) and neuronal cells. MSCs are derived from both the bone marrow and non-marrow tissues, including the umbilical cord and have the capacity for self-renewal while maintaining multipotency. As MSCs potentially contribute to both the niche and structural support of normal cells, but also tumourigenic and damaged cells, we can utilise them as models to identify therapeutic targets as well as utilise their cell regulatory potential. The extracellular matrix (ECM) not only provides a scaffold for cell and tissue integrity but also mediates cellular signalling processes. The heparan sulfate family of proteoglycans (HSPGs) are ubiquitous to this cell niche and interact with a large number of ligands including growth factors, their receptors, and other ECM structural components. We are currently examining HSPGs within the niche for their role in mediating MSC lineage commitment as well as for their role in breast cancer epithelial cell proliferation and invasive/metastatic potential.

Current advances in Molecular Medicine - ILLUMINA Next Generation Sequencing

Nurul Syakima Ab Mutalib

Deciphering the nucleotide sequences is fundamental for practically all branches of biological research. Alterations of nucleotide sequences play a part in both normal and abnormal biological processes, including evolution, cancer, and the development of the immune system. With the introduction of capillary electrophoresis (CE)-based Sanger sequencing, scientists gained the ability to elucidate genetic information from any given biological system. This technology then became extensively implemented in laboratories throughout the world, yet has always been hindered by innate limitations in throughput, scalability, speed, sensitivity, accuracy and resolution, that frequently preclude scientists from obtaining the vital information required for their research. To overcome these obstacles, an entirely innovative technology was required—Next-Generation Sequencing (NGS), a fundamentally different approach to sequencing that elicited numerous innovative discoveries and induced a revolution in genomic science. In this presentation, latest NGS technology applications in Molecular Medicine; basic research and clinical utility will be discussed.

Current updates on Overactive Bladder (OAB) Management

Azhar Amir hamzah

Overactive bladder (OAB) is a urological condition defined by a set of symptoms: urgency, with or without urge incontinence, usually with frequency and nocturia. The prevalence of OAB increases with age, thus it is expected that OAB will become more common in the future as the average age of people living in the developed world is increasing. A local study noted that the prevalence of OAB is 42%. The etiology of OAB is unclear, and indeed there may be multiple possible causes. It is often associated with overactivity of the Detrusor muscle. Diagnosis of OAB is made primarily by ruling out other causes of overactivity of the bladder such as an infection, stone or bladder tumor, benign prostatic hyperplasia and neurological problems. The diagnosis is confirmed by cystometry. Treatment for OAB includes nonpharmacologic methods such as lifestyle modification, bladder retraining or may involve the use of pharmaceutical agents and various devices. Botulinum Toxin A injections into the bladder wall can suppress involuntary bladder contractions by blocking nerve signals and may be effective for up to 9 months. The growing knowledge of pathophysiology of overactive bladder fuelled a huge amount of basic and clinical research in this field of pharmacotherapy. A surgical intervention-augmentation cystoplasty- involves the enlargement of the bladder using bowel tissues, although generally used as a last resort. This procedure can greatly enlarge urine volume in the bladder.

INVITED SPEAKERS ABSTRACTS

DAY 3: 24TH MAY 2013

Gene therapy - the future is now

John EJ Rasko AO

It is an exciting time for genetic therapies. Since 1989 over 1500 Phase I/II studies of direct *in vivo* and cell-mediated gene therapy in diverse diseases have been completed (1). Substantial evidence of improved clinical outcomes has been shown in haemophilia B, immune deficiencies, haemoglobinopathies, immunotherapies and blindness. In the field of cellular therapeutics, applications have expanded beyond the foundation in autologous and allogeneic hemopoietic cell transplantation to mesenchymal and other adult cell therapy trials. Indeed, if pluripotent cells can be differentiated *ex vivo* to recreate and repair mature human tissues and organs then regenerative medicine will become a reality. However embryonic stem cells have been mired in controversy and clinical development has been forestalled (2). Medical and, in particular, stem cell tourism has become a billion dollar industry with increasing examples of false claims (3). Unregulated, untested or unsafe stem cell 'therapies' place the field at a challenging crossroad.

Biomarkers in Kidney Injury

Azreen Syazril Adnan

Acute kidney injury (AKI) is a reversible condition, delay in medical intervention results in increased morbidity and mortality. Conventional biomarkers are poor markers in diagnosing acute kidney injury. These are filtrating markers; in which elevation of these biomarkers occur when substantial damage had taken place. Early biomarkers can detect renal injury within one or two days after the onset of kidney injury. Earliest detection of kidney dysfunction will lead to early medical intervention. This lecture is aimed to review new AKI biomarkers, in clinical context. An ideal AKI biomarker should be accurate, reliable, cost effective, non-invasive, and reproducible with acceptable sensitivity and specificity. Urine represents an ideal body fluid for AKI biomarker assessment; it can be obtained non-invasively and repeatedly from spontaneously voided sample or from an indwelling bladder catheter. Four AKI biomarkers, neutrophil gelatinase-associated lipocalin (NGAL), inter-leukin 18 (IL-18), Kidney Injury Molecule -1 (KIM-1) and Liver Fatty Acid Binding Protein (L-FABP) have been tested to various degrees in ongoing clinical trials. Majority of AKI biomarker validation studies, include patients post cardiopulmonary bypass or after renal transplantation. These patients are selected as the timing of kidney injury is known, and the biomarkers can be assessed repeatedly after the event, with AKI event rates are well documented. A biomarker must have several qualities to be clinically applicable. Firstly, the biomarker test should be easily to perform, non-invasive and, using external bodily fluids or blood. Availability as a bedside test is an added advantage or alternatively a simple laboratory test using a rapid and reliable standardized platform. Secondly, a biomarker should be highly specific for the disease and able to identify subtypes and even causes of the disease. Lastly, a biomarker should be sensitive for as early detection as possible.

Renal cancer biomarkers and R.E.N.A.L. nephrometry

Azhar Amir Hamzah

A biomarker, or biological marker, is an indicator of a biological state, or the past or present existence of a particular type of organism. Cancer biomarkers mainly exist as measurable indicators of carcinogenic processes or pharmacologic response to a therapeutic maneuver, or by the body in response to cancer. Cancer biomarkers, therefore, may be measured not only in the tumour tissues, but also in the normal tissues or bodily fluids of a cancer patient. Some of the more colorful and illustrative terms used to describe molecular biomarkers are "signature molecules" and "fingerprint molecules. Cancer biomarkers are broadly classified into early detection biomarkers, diagnostic biomarkers, prognostic biomarkers and predictive biomarkers. Predictive biomarkers are used to predict response to therapies, especially to targeted therapies, monitor drug effects and individualized response.

Renal cell carcinoma (RCC) is the major adult malignancy of the kidney; it is subclassified into several subtypes including clear cell, papillary and chromophobe RCC. Renal oncocytoma is a relatively common benign tumor that may be related to chromophobe RCC. Accurate classification is clinically important, because tumor subtypes are associated with different malignant potential, prognoses and optimal therapies. In the context of RCC, the early detection and diagnostic biomarkers still remains a mystery to researchers. Molecular markers have been extensively explored in kidney cancer in an attempt to determine prognostic risk with increased accuracy and, subsequently, to make therapeutic decisions. Potential prognostic and predictive biomarkers have been identified. Prognostic biomarkers could be further classified into clinical biomarkers, histological biomarkers and genetic biomarkers. Predictive biomarkers are further classified into predictive biomarkers for immunotherapy (eg CAIX), predictive biomarkers for VEGF-targeted therapy (eg NGAL, VEGFR, HIF, VHL) and predictive biomarkers for m-Tor Targeted Therapy (eg LDH, p-Akt). Biomarkers represent the future of renal cancer therapeutics.

Treatment decisions for renal malignancies depend largely on qualitative data, including a description of tumor anatomy and the experience of the treating surgeon. Currently, characterization of renal tumor anatomical elements is descriptive and lacks standardization. A standardized nephrometry scoring system (R.E.N.A.L. Nephrometry Score) to quantify the anatomical characteristics of renal masses on computerized tomography/magnetic resonance imaging has been recently developed to facilitate in terms of decision making for surgery among urologists.

Standardized reporting of renal tumor size, location and depth is essential for decision making and effective comparisons. The R.E.N.A.L. Nephrometry Score consists of (R)adius (tumor size as maximal diameter), (E)xophytic/endophytic properties of the tumor, (N)earness of tumor deepest portion to the collecting system or sinus, (A)nterior (a)/posterior (p) descriptor and the (L)ocation relative to the polar line. The suffix h (hilar) is assigned to tumors that abut the main renal artery or vein.

The R.E.N.A.L. Nephrometry Score is a reproducible standardized classification system that quantitates the salient anatomy of renal masses. This novel approach for the systematic characterization of renal tumors provides a tool for meaningful comparisons of renal masses in clinical practice and in the urological literature.

ORAL PRESENTATION ABSTRACTS

FM1

Study to see the impact of integrated intravenous care to reduce intravenous superficial thrombophlebitis (ST) in KPJ Seremban Specialist Hospital

Abdul Aziz Abdul Rahman

Introduction: Guidelines of intravenous catheter was published by Center of Disease Control(CDC) 2011.However complications continue to occur. It was recommended that the best practices are to change intravenous catheter within 72-96 hours for adults. Even though the replacement increases health care costs and staff workload and requires patient to undergo repeated invasive procedures, the practices were able to reduce the risk of ST.

Objectives: To monitor the number of Superficial Thrombophlebitis in this hospital and to see the impact of interventions in bringing down the ST cases

Methods: A retrospective study was conducted for all IV site inserted to adults within ages more than 12 years old for a period of two years from January 2011 to December 2012.

Results: For the year 2011, 9731 intravenous sites were monitored and it was found that 657 (6.8%) sites developed ST. In year 2012, integrated intravenous care was implemented to all IV sites (9977sites) and it was found that only 310 (3.1 %) sites developed ST. Therefore, the rate of ST decreased from 6.8% in year 2011 to 3.1% in year 2012.

Conclusion: The implementation of integrated intravenous care managed to reduce case of ST by 3.7% based on the study that was conducted. However continuous monitoring of catheter intravenous sites, intravenous care and re-siting of intravenous cannulae should be done to avoid complications.

FM2

Joint analysis of *tert* gene copy number and its expression level in chronic myeloid leukemia (CML) patients treated with imatinib mesylate (IM)

Watihayati Mohd Shamshudin, Zaidatul Shakila Ashaari, Rosline Hassan, Azlan Husin, Ravindran Ankathil, Abdul Aziz Baba, Goh Ai Sim, Sarina Sulong

Introduction: Telomerase, a ribonucleoprotein complex consists of a protein component with reverse transcriptase activity, encoded by *TERT* gene, and an RNA component serves as a template for the telomere repeat. The maintenance of the telomere length stability is required in almost all cancer cells. As a treatment for CML, IM have been found to be an effective antitumor activity but there are patients resistant to this drug.

Objectives: This study was carried out to determine the copies of *TERT* gene and its expression level in both group of CML patients treated with IM.

Methods: Twelve blood samples of CML patients treated with IM were recruited from HUSM and other hospitals in Malaysia. DNA and RNA was extracted and proceeded with qPCR and qRT-PCR respectively. A commercialized TaqMan Copy Number assay was performed to detect the amplification of *TERT* gene. Expression level was determined by relative quantification using TaqMan assay by real-time PCR.

Results: A cut off value for *TERT* CNC and CNP was defined as $CNC > 2.08$ and $CNP > 2$. Fold difference of the samples were calculated to obtained the level of expression. All of the samples showed 2 copies of the gene with variant levels of gene expression

Conclusion: The copy number of *TERT* was not directly reflect the expression of the gene. The expression of gene may be contributed by other factor such as post-transcriptional modification. However, 2 samples from resistant patients showed relatively higher expression of *TERT* gene may suggest that this gene may involve in molecular mechanism of IM resistant among those patients.

FM3

DCS, a latex fraction from *Hevea brasiliensis* triggers autoschizis cell death in human hepatocellular adenocarcinoma HepG2 cells

Lam Kit Lay, Yang Kok Lee, Sunderasan a/l Elumalai & Ong Ming Thong

Latex from the natural rubber tree known as *Hevea brasiliensis* has always been considered as an economic commodity and never been thought as a medicinal alternative until recently. Our recent findings have indicated that latex C-serum possessed antiproliferation properties against specific cancer-origin cell line. The present study has further confirmed that a sub-fraction of latex C-serum, DCS, was able to exert its antiproliferation properties against HepG2 cells and the cell death mechanism has been identified. Annexin-V-FLUOS cell staining kit, scanning electron microscopy (SEM) and cell cycle analysis using flow cytometry with BrdU incorporation were carried out on DCS-treated HepG2 cell line. The DCS-treated HepG2 cells were positively-stained with propidium iodide and negatively-stained with Annexin V, indicating apoptosis might not be the mechanism of cell death. Cell cycle analysis using BrdU incorporation showed that the treated cells were arrested in G₀/G₁ phase compared to the non-treated cells. Furthermore, ultrastructural changes of DCS-treated cells observed using SEM confirmed the cell death mechanism triggered as autoschizis. In addition to its potential medical use in cancer treatment, DCS sub-fraction could be used to study the molecular signaling pathway(s) involved in autoschizis.

FM4

Prevalence of *Helicobacter pylori* among diabetic and non-diabetic patients in Hospital Universiti Sains Malaysia and its associated factors

Siti Farhanah Hasnan, Fauziah Mohamad Idris, Hasnan Jaafar, Syed Hatim Noor

Many aspects of the epidemiology of *Helicobacter pylori* (*H.pylori*) infection are poorly understood. Previous reports showed conflicting results on the prevalence of *H. pylori* infections among patients with diabetes and its associated factors. *Objective:* This study focused on the potential influence of diabetic status, race, gender, age, BMI, blood glucose level, area of residence, gastritis, dyspepsia, stomach cancer, smoking and alcohol history on the prevalence of *H.pylori*. *Method:* A cross-sectional study was carried out using patients' records in Pathology Laboratory and Medical Record of HUSM. Logistic regression analysis was chosen to explore the relationship between dichotomous variable and a set of independent variable with p-value < 0.05 considered as statistically significant. *Results:* Out of 220 patients, 110 were found to be positive with *H. pylori* infection. Results showed higher percentage of *H.pylori* infection in patients with diabetes mellitus (60.8%) as compared to those without diabetes (42.9%). *H.pylori* infection is statistically significant in patients who had gastritis (98.2%), who are active smoker (64.1%) and live in rural areas (59.0%). *Conclusion:* This study showed that there is a high prevalence of *H.pylori* infections in diabetic patients. The infections were found to be significantly associated with gastritis, smoking and socio-economic status. By controlling these factors it may help to reduce the morbidity associated with *H. pylori* infections, especially in diabetic patients.

FM5

Effect of enalapril (antihypertensive drug) on enzymatic antioxidant activities in heart of L-name administered spontaneously hypertensive rat

Nik Syamimi Nik Yusoff, Zulkarnain Mustapha, Chandran Govindasamy And K.N.S. Sirajudeen

Introduction : Oxidative stress plays an important physiological role in the development of hypertension. Spontaneously hypertensive rat (SHR) + N-nitro-L-arginine methyl ester (L-NAME) model has been used to study the hypertension induced organ damage. However, the effect of Enalapril (an antihypertensive drug, AHD) in enzymatic antioxidant activities in the heart of SHR and SHR+L-NAME has not been well studied.

Objective : Therefore this study was carried out to investigate the effect of Enalapril (an AHD) on the enzymatic antioxidants Superoxide dismutase (SOD), Catalase (CAT) and Gluthathione peroxidase (GPx) in the heart of Spontaneously Hypertensive Rats (SHR).

Methodology : Male rats were used in this study and divided into four groups [SHR, SHR+Enalapril, SHR+L-NAME and SHR+Enalapril+L-NAME). Rats were administered with Enalapril ($30 \text{ mg kg}^{-1} \text{ day}^{-1}$) from 4 - 28 weeks in drinking water, and L-NAME ($25 \text{ mg kg}^{-1} \text{ day}^{-1}$) from 16 - 28 weeks. At the end of 28 weeks, all animals were sacrificed and the heart was collected for the assessment of SOD, CAT and GPx activities.

Results : No significant difference was evident in SOD and GPx activity of Enalapril treated SHR and SHR+L-NAME when compared to their matched untreated groups. Enalapril treatment increase the activity of CAT in SHR and SHR+L-NAME ($P < 0.001$) when compared to their matched untreated groups.

Conclusion : The results of this study indicates that the CAT activity was increased in Enalapril treated SHR and SHR+L-NAME and thereby Enalapril treatment reduce oxidative stress in heart in addition to its antihypertensive action.

FM6

Respiratory symptoms and pulmonary function of male steel workers in Terengganu, Malaysia

Nurul AH, Noor Hassim I, Shamsul BMT, and Atikah CH

Introduction: Steel workers are continually exposed to dust, fumes, and gases and hence at risk of developing of Occupational Respiratory Diseases (ORD) and becomes a major health problem in many industries. There is no doubt that advanced obstructive pulmonary diseases are usually associated with significant obstructive lung function impairment.

Objective: To study is to determine the prevalence of respiratory symptoms and the association between lung function tests and respiratory symptoms with selected variables such as age, smoking habit, and duration of work among workers.

Materials and Methods: A cross sectional study was carried out among 523 male workers in a steel mill in Terengganu. The subjects were interviewed by using a validated questionnaire adapted from British Medical Research Council (BRMC) Questionnaire on respiratory symptoms. The questionnaire includes to the respiratory symptoms, past medical history, smoking, and occupational history. Pulmonary function was measured with portable spirometer. Data analysis was done using univariate and multivariate analysis.

Results: Respiratory symptoms commonly reported by the workers were morning phlegm (33.1%), shortness of breath (31.9%), chest tightness (30.4%), and morning cough (17.8%). Prevalence of respiratory symptoms was greater among current smokers. The Chi Square test showed age had a significant relationship with each of the respiratory symptoms ($p < 0.05$). Duration of employment also had a significant relationship with chest tightness and shortness of breath ($p < 0.05$). FVC and FEV₁ of these workers were significantly reduced as compared to the healthy population. Age, duration of work, and smoking had significant relationship with FVC and FEV₁ ($p < 0.05$). The prediction model of FVC and FEV₁ were explained by 12% and 17% of the independent variables respectively.

CONCLUSION: Working in steel plant is associated with significant respiratory symptoms and the lung function test revealed some degree of impairment as compared to the healthy population (FEV₁=1,81% and FVC =2.66%).

FM7

Evaluation of insulin sensitivity in passive smoking

Siti Hajar MH, Norhayati MN, Harmy MY, Aida HGR, Hamid Jan JM

Introduction: Active smoking is a risk factor for type 2 diabetes, but it is unclear whether passive smoking (PS) is also correlated with diabetes.

Objectives: To investigate whether PS is associated with alteration of insulin sensitivity among apparent healthy women adults.

Method: A comparative cross-sectional study was carried out in May 2011 until December 2013. Subjects was identified and assigned into group of PS and control. PS is person who exposed to cigarette for at least 15 minutes per day more than one day per week. Insulin sensitivity was calculated using integration of lipid parameters; Disse index. ANOVA and Pearson correlation analyses were used.

Results: Mean age of subjects was 32.1 ± 7.00 years; 66 subjects per group. No significant different was observed in insulin sensitivity between groups although there slightly reduction in insulin sensitivity level among PS (PS was -11.2 ± 9.97 vs control -9.1 ± 7.06 , $p = 0.181$). Disse index was significantly correlated with waist circumferences ($r = -0.369$) and HOMA-IR index ($r = -0.850$).

Conclusion: The inhalation for at least 15 minutes per day more than one day per week to cigarette smoke does not seem to alter insulin sensitivity in healthy population. Disse index might be reliable to use in healthy population.

FM8

Effect of omega3 supplementation on night sweats among middle age women: a randomised, triple- blind, placebo- controlled clinical trial

Razieh Moghadam & G.Ozgoli

Introduction: Night Sweats is one of compliance that impact on sleep, mood, quality of life and reproductive health.

Objective: To compare the effects of omega3 fatty acid supplementation and placebo, on Night Sweats in middle age women.

Methods: This clinical trial study on 83 middle age Women between 45-60 years old were randomly assigned to clinical group (Omega3) or a control group (placebo). The inclusion criteria were Iranian nationality, being literate, age 45-60 years, reporting at least two times Night Sweats per day. Exclusion criteria: receiving hormone therapy, having any known diseases consumption of drugs such as anticoagulants, sedatives, alfa-adrenergic agonists supplements,, hypersensitivity to fish or fish oil. Capsules of omega3 and placebo took 8 weeks, 1 times a day. Out of the 83 patients enrolled, 68 completed the study (Omega3 supplement, n=34; placebo; n = 34).

Collection: Data collection method was diary self report questionnaires. Data were analysed by SPSS18, Mann Whitney.

Results: ∴ After 8 weeks, There was significant difference Night Sweats frequency between two groups ($P=0/01$). And Night Sweats frequency reduced in two groups ($P<0.001$). There was a significant difference in Night Sweats intensity between two groups ($P=0/002$) And reduction of Night Sweats intensity was a significant difference within groups ($P=0/001$).

FM9

Malaysian white Portland cement: phase analysis and cell attachment properties on dental pulp stem cells

Hany Mohamed Aly Ahmed, Norhayati Luddin, Thirumulu Ponnuraj Kannan, Khairani Mokhtar, Ahmad Azlina

Objectives: To evaluate and compare the analysis phase and cell attachment properties of White Mineral Trioxide Aggregate (WMTA) and Malaysian White Portland cement (MAWPC) with and without the addition of a setting accelerator (calcium chloride dihydrate ($\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$)).

Methods: The test materials were prepared in triplicates for SEM/EDX analysis. The phase analysis was carried out using an X-ray diffractometer system (PANalytical X'Pert, The Netherlands). The phase identification was accomplished using search-match software utilizing International Centre for Diffraction Data (ICDD) database. The cell attachment properties were examined under SEM using dental pulp stem cells (DPSCs), after 24 and 72 hours. The images were established after the samples were processed.

Results: At normal set formulations, the amorphous and crystalline surface morphology is characteristic of all groups. The fast set formulations demonstrated a homogeneous surface. WMTA differed from both WPC by the absence of sulphur and the presence of bismuth. Potassium was merely identified in MAWPC. Calcium silicate, calcium carbonate and bismuth oxide were detected in WMTA, and the addition of $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$ resulted in the formation of calcium silicate chloride. Tricalcium silicon oxide, calcium sulphite and potassium carbonate were identified only in MAWPC, and chlorocalcite was only observed in fast-set MAWPC. Despite the difference in chemical composition, DPSCs were able to attach to all materials with prominent cytoplasmic processes, especially after 72 hours.

Conclusions: The chemical composition of WMTA and MAWPC at normal and fast set formulations shows detectable variations. All materials favoured cell attachment; however, further studies are warranted to validate the potential use of MAWPC in dentistry.

FM10

Effectiveness of additional video education in improving knowledge and attitude on cervical cancer and pap smear

Nursuhaila I , Norwati D, Rosediani M

Introduction: Cervical cancer is the third most common cancer in women in West Malaysia. However, only 43% of Malaysian women undergo Pap smear screening.

Objective: To determine the effectiveness of additional video education in improving knowledge and attitude on cervical cancer and Pap smear.

Methods: A community intervention study was done between September 2012 and February 2013. It involved women who have never had a Pap smear from two villages in Pasir Mas, Kelantan. The two villages were randomised into intervention and control group. In the intervention group, video education was added to the current practice of health education. A self-administered questionnaire was used to assess their knowledge and attitude at baseline and two weeks after. The data was analysed using SPSS version 20.

Results: There were 102 women involved in the study with equal number in both groups. The mean (SD) knowledge score at baseline was 77.01(6.70)% in the intervention group and 74.94(6.57)% in the control group. Respectively, the mean (SD) attitude score was 66.76(7.55)% and 64.07(9.99)%. Post intervention, the mean knowledge score (SD) was 90.7(5.25) % in the intervention group and 85.9(7.25) % in the control group. Respectively, the mean attitude score (SD) was 70.0(7.58) % and 68.9(10.32) %. Post intervention, the score was statistically significant in the intervention group ($P < 0.001$) for knowledge but not for the attitude ($P = 0.646$).

Conclusion: Additional video education was effective in improving knowledge but not attitude on cervical cancer and Pap smear among women who have never had a Pap smear.

FM11

Estimating drug-free period using a graphical method: an alternative way to monitor the appropriateness of once-daily gentamicin regimen

Nursahjohana Md Sahak

Introduction: Published nomograms to monitor once daily dosing gentamicin (ODD) therapy were developed based on a fixed dose of 5 or 7 mg/kg, which aim to produce maximum concentration of 20 mg/L. Preliminary findings show that the dose used in local setting is 3 to 4 mg/kg/day. Therefore, with doses less than 5 mg/kg, these published nomograms are not appropriate.

Objective: To develop a nomogram using a single blood sampling as a monitoring method of once daily gentamicin regimen in Hospital Melaka.

Methods: Demographic and serum gentamicin concentrations data were collected from medical records of patients who were admitted to Hospital Melaka from January 2005 to December 2009. Elimination rate constant, (K_e) was estimated assuming a one compartment model. An empirical relationship between K_e and age was developed and the duration of drug free period (DFP) was determined. To compare DFP calculated by this method and the observed DFP, a prospective study involving hospitalized adult patients was performed. This study was approved by Clinical Research Centre (CRC) and Medical Research Ethics Committee (MREC), Ministry of Health, Malaysia (NMRR-09-381-3940).

Results: Retrospective data shows empirical relationship $K_e = -0.002 (\text{Age}) + 0.364$ ($r = -0.453$; $p = 0.001$). DFP calculated using this relationship correlated well with DFP calculated using prospective data ($r = 0.742$; $p < 0.05$).

Conclusion: K_e , obtained empirically, when plotted with a single drug concentration data can be used to estimate DFP. DFP can be used to determine the appropriateness of ODD gentamicin regimen.

FM12

Risk factors associated with secondary multidrug-resistant tuberculosis among Malaysian

Omar SE, Habsah H, Sarimah A, Mat Zuki MJ, Wan-Arfah N, Zilfalil BA and Naing N N

Background: Multi-drug resistant tuberculosis (MDR-TB) is defined as M. tuberculosis that are resistant to isoniazid and rifampicin. It is considered as a major public health threat to TB control worldwide. Completing treatment for MDR-TB is more challenging than completing first-line TB therapy, because of long treatment course and the more-toxic second-line drugs often cause disruptive adverse events.

Objective: The aim of this study was to identify the risk factors associated with the development of secondary MDR-TB among Malaysian.

Methods: A retrospective study was conducted from January 2005 to December, 2012. The subjects were from multiple centre hospitals and respiratory specialist clinic in West Malaysia. It includes MDR-TB patients who attended the outpatient clinic or warded in the hospital. The inclusion criteria were those with confirmed cases by smear culture positive and tested in first line drug susceptibility testing (DST). Multiple logistic regressions were used in the statistical analysis.

Results: A total of 85 MDR-TB patients were included in the study. They comprise female 27(31.8%) and male 58(68.2% with an age range 42.58 + 16.27 years. The significant risk factors for the development of secondary MDR-TB were defaulted TB treatment [adjusted AOR(95%CI) 6.35(21.82, 22.10)] and history of intravenous or /subcutaneous drug use [AOR (95%CI):6.6(1.27, 34.88)]

Conclusion: Defaulted TB treatment and drug abuse were found to be the significant risk factors associated with developing secondary MDR-TB among Malaysian.

FM13

The effects of three months combining aerobic exercise and milk supplementation on cognitive performance in female students

Sedigheh Moghaddam, Hairul Anuar Hashim, Mohamed Rusli Abdullah & Mohd Nidzam Jawis

Introduction: Previous observational studies suggested that quality of diet and regular physical activity is positively associated with school children cognitive development.

Objective: The purpose of this study was to determine the effects of combining aerobic exercise and milk supplementation on cognitive performances among secondary female school students.

Methodology: Subjects consisted of 83 (16 years old female) students who were randomly grouped into either one of the three intervention groups: Milk, exercise, a combination of milk and exercise and a control group. Milk supplementation was provided to the students daily during school days and a one-hour aerobic exercise was conducted for twice a week for 3 months. Studied parameters were measured before and after the intervention program. Digit Span Test (DST) and Digit Vigilance Test (DVT) were used to measure of a student's short- term memory and sustained attention respectively.

Result: Two-way ANOVA results showed that student's short term memory was significantly higher in the intervention groups compared with control group and combined group ($p=0.001$) compared to milk group. Moreover significant improvement was observed for DVT (digit 9) in the intervention groups compared with the control group and significant improvement for DVT (digit 6) in the combined group (0.025) compared with the control group. However significant higher score was observed in DVT (error of omission) in the combined and physical activity groups compared with the control group (0.004) and a combined group compared with the control and milk groups (0.002) in digit 9 and digit 6 respectively.

Conclusion: Moderate to vigorous aerobic exercise combined with daily milk supplementation seemed to improve student cognitive function.

FM14

Efficacy of Chitosan film versus DuoDerm® Extra Thin on superficial wounds: A prospective multi-center randomized study

Nur Azida Mohd Nasir, Arman Zaharil Mat Saad, Nor Saadah Bachok, Fatimah Mohd Noor, Ida Zarina Zaini, Nik Hisamuddin Ab Rahman, Farah Hani Imran, Ahmad Sukari Halim

Objectives: To investigate the efficacy and compatibility of chitosan film in comparison with a commercial preparation DuoDerm® Extra Thin in superficial and abrasion wounds in patients.

Methods: This is a prospective randomized controlled trial, single blinded and multicenter study in patients with superficial wound (abrasion wound). Patient aged between 16 to 70 years olds were invited to participate, counselled and consented. Patients were randomized into Chitosan film or DuoDERM Extra Thin dressing. Wound toilet was performed and dressing was applied according to the randomization. The primary endpoint was wound epithelialization (%) and the secondary endpoints were to assess the wound drainage, erythema, localized warmth and edema/induration, pain upon removal, exudate, adherence, ease of removal and odour. In addition, the itchiness and pain/tenderness were assessed for dressing's compatibility. The assessment was done on day 5, day 7, day 9, day 11 and day 13.

Results: Two hundred and twenty four patients were enrolled. One hundred twenty one (49.6%) were treated by Chitosan film (treatment group) and 123 (50.4%) were treated with DuoDERM® Extra Thin (control group) dressings. A total of 170 patients completed the study. Eighty six (50.59%) were in the treatment group and 84 (49.10%) were in the control group. The repeated measure ANOVA showed there is no significant difference in the mean of epithelialization percentage ($p=0.290$), adherence ($p=0.553$), ease of removal ($p=0.466$), wound drainage ($p=0.719$), erythema ($p=0.767$), itchiness (0.686) and pain/tenderness ($p=0.337$). Assessment for localized warmth and edema/induration were reported absent in all patients. However pain upon removal was slightly higher in the treatment group ($p=0.007$), wound exudate ($p=0.036$) and odour ($p=0.024$) were higher in the control group.

Conclusion: This study showed that Chitosan film dressing is comparable to DuoDERM Extra thin dressing in term of healing the superficial/abrasion wound.

FM15

51- chromiumethylenediaminetetraacetic acid (51Cr-EDTA) glomerular filtration rate (GFR) analysis: comparing two blood sampling with multiple blood sampling

Mohamad Shahrir Abdul Rahim & Sazilah Ahmad Sarji

Objective: The purpose of this study is to determine the accuracy of using two blood samples compared to multiple blood samples, for calculation of GFR by the 51Cr-EDTA method. In addition, the study aimed to determine the best combination time of two blood sampling and correlation with gender and ethnicity of the patients.

Methodology: 51Cr-EDTA tracer solution is injected into a vein in the upper arm. Six mls of whole blood is then drawn from the opposite arm at 120, 150, 180 and 240 minutes, centrifuged and 2 ml aliquots of plasma are pipetted and counted for a period of 5 minutes each time, in an automatic gamma well counter. GFR is calculated by measuring Cr-EDTA plasma clearance using the slope intercept method. The patients' height and weight are used to correct the GFR to body surface area. Correlations of the values are tested by Pearson and Intraclass correlation, mean and standard deviation derived from pair t-test.

Result: All time point combinations using two blood sampling shows a high correlation with multiple blood sampling method (p value < 0.001, r = 0.909 to 0.989). The best combination using two blood sampling is at 2 and 4 hour time point (r = 0.989 with 99% consistency). There is no significant difference in the GFR obtained by two blood sampling and multiple blood sampling between gender and ethnicity.

Conclusion: 51Cr-EDTA GFR estimation using two blood sampling method is accurate and reliable. The two and four hour time point is found to be the best. Gender and ethnicity do not influence GFR estimation using two blood sampling method.

FM16

Assessing subtype and drug-resistance associated mutations in treatment-naïve HIV-1 infected prisoners in Kelantan

Tengku Ahmad Akram Tengku Mohd Ariffin, Suharni Mohamad, Wan Nazirah Wan Yusuf, Maizan Mohamed and Rafidah Hanim Shueb

Introduction: The widespread use of Highly Active Antiretroviral Therapy (HAART) and the continuous reports of HIV-1 strains developing resistant to these drugs is rather alarming as transmission of resistant viruses to newly infected persons are possible resulting in reduced efficacy of a first-line HAART therapy. However, data on antiretroviral (ARV) resistance in treatment-naïve HIV carrier especially among prisoners are lacking.

Objective: To determine HIV-1 subtypes and the prevalence of mutations associated with drug resistance among treatment-naïve prisoners.

Methods: Viral RNA was extracted from plasma samples of 21 treatment-naïve prisoners from Pengkalan Chepa Prison. Protease (PR), reverse transcriptase (RT) and long terminal repeat (LTR) were amplified and sequenced. Stanford HIV database algorithms were used for interpretation of resistance data and phylogenetic analysis was undertaken for subtype assignment.

Results: In PR gene, no major and minor mutations were detected. In the RT segment, only one major mutation, K103N was present in sequenced samples, found in three individuals (14.3%). Various major mutations were present in sequenced samples with low frequency each (4.8%); M41L, T69N, L74I, M184V, and T215Y associated with NRTIs resistance, Y181C and Y188L associated with NNRTIs resistance. Genetic subtyping on different regions revealed different predominant subtypes. In combined PR and RT genes, most of the samples were infected with CRF33_01B (57.1%), while in LTR region was CRF01_AE (76.9%).

Conclusion: Continuous surveillance of newly infected individuals is required since greater access to HAART is expected in the future and to help strategize the best first-line treatment to the patients.

FM17

Direct tetrazolium microplate assay (TEMA) in the drug susceptibility testing of *Mycobacterium tuberculosis* against first-line anti-mycobacterial agents

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Introduction: The need for rapid, inexpensive and high-throughput assays for drug susceptibility testing (DST) of *Mycobacterium tuberculosis* (MTB) is high especially in developing countries where tuberculosis cases are prevalent. In response to this necessity, a direct microplate-based colorimetric assay which excludes the need for pre-testing isolation was evaluated.

Objective: The study was conducted to evaluate MTB susceptibility to first line anti-mycobacterial agents tested directly on sputum specimens using TEMA and compare with absolute concentration (AC) susceptibility method.

Methodology: In this preliminary study, a total of 28 smear positive sputum specimens was collected and processed. TEMA was performed by inoculating microplate with the processed specimens (direct) and culture isolate (indirect) in serial-diluted first-line anti-mycobacterial agents. Microplates were incubated at 37°C for a minimum duration of 5 days and tetrazolium dye was employed as growth indicator. The minimum inhibitory concentrations (MIC) and time taken for results availability were compared with AC method. The sensitivity and specificity of direct TEMA were also determined.

Results: For direct TEMA, the MICs of resistant strains for both isoniazid (INH) and rifampicin (RIF) were more than 0.0313 µg/mL, and to streptomycin (SM) was 0.25 µg/mL. No specimens detected resistant to ethambutol (EMB) by AC method. In direct TEMA, the sensitivity for INH, RIF and SM were all 100% and the specificity was 88.89%, 87.5% and 85.19% respectively. Results of all specimens were available within 26 days (mean=14 days) which were shorter than indirect TEMA and AC method ($p < 0.05$).

Conclusion: We conclude that direct TEMA is rapid, inexpensive and simple for the DST of MTB.

FM18

The effects of 2.5% rapid weight loss on the performance and physiological parameters in the young elite male wrestlers

Abbas Memarbashi & Reza Farzizade

Introduction: It's common for wrestlers to reduce their body mass before a match in an attempt to gain a competitive edge in their weight class, but a rapid and high percentage of dehydration can dramatically reduce the wrestler's performance.

Objectives: The purpose of this study was to investigate the effects of weight loss on the exercise performance and plasma volume in the young wrestlers.

Methods: Ten elite wrestlers with age (16.4 ± 0.51 y) were voluntarily participated in this study. Anthropometric parameters, body fat percent, long distance jump, height jump, flexibility, Queen's step test, Illinois agility test, 60-meter dash, visual and audio reaction times, urine specific gravity, hematological parameters and plasma volume were measured in three sessions 1) before weight loss, 2) after 24 h of weight loss and 3) after 16 hours recovery. Repeated measure ANOVA with Bonferroni pairwise comparisons are computed to identify any statistical differences between sessions.

Results: The average of all variables during and after weight loss and after 16 hour weight loss had significant differences except for body fat% and height jump. According to the results obtained in this study, dehydration has a negative impact on performance, physical fitness, and physiological parameters.

Discussion: It was noted that physiological parameters and performance was not returned to the normal level after 16 hours of rehydration.

FM19

Predictive factors affecting the quality of life (QOL) among Malaysian caregivers of cancer patients

Rafi Mahmoud Hindi Alnjadat, Wan Aasim Wan Adnan & Zalina Ismail

Background: The caregivers' health assessment requires the application of a comprehensive assessment to meet their needs based on their experience about quality of life concept.

Objective: This study evaluated the socio-demographic characteristics of Malaysian caregivers of cancer patients in order to predict the factors most likely to affect their QoL.

Method: This was a cross-sectional, randomized purposive study of 137 Malaysian caregivers of cancer patients conducted over a six month period in June 2012 in Kelantan, a state within Malaysia. The [QoL] of these caregivers were assessed by a self administered questionnaire: Quality of Life in Life-Threatening Illness – Family Carer Version (QOLLTI-F).

Results: Multiple linear regression analyses in SPSS (v20) of 137 caregivers of cancer patients showed that a lower quality of life was associated with a widowed and/or divorced status ($p=0.015, p=0.013$). Unshared care also had a negative impact on QoL as shown by significantly lower QOLLTI-F scores ($p=0.014$).

Conclusion: Caregiver quality of life is multidimensional and may vary from different individuals under different conditions and in different cultures. This study demonstrated that marital status and the burden of care are the two main characteristics of Malaysian caregivers which are predictive of their quality of life.

FM20

Frequency of *Helicobacter pylori* in upper gastrointestinal bleeding patients in Hospital Universiti Sains Malaysia

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TS Sharifah Emilia & BA Zilfalil

Introduction: Upper gastrointestinal bleeding (UGIB) remains one of the most common clinical life threatening emergencies which are associated with a high morbidity and mortality. *Helicobacter pylori* infections among UGIB patients range from 24.4% to 92.4%.

Objectives: To determine the frequency of *Helicobacter pylori* and endoscopic findings of upper gastrointestinal bleeding patients

Methods: Retrospective record review study was conducted among UGIB confirmed patients from 2009-2012 at Hospital Universiti Sains Malaysia. All patients who attended the clinic as outpatients or those who were admitted in hospital were recruited Data collected included age, gender, *Helicobacter pylori* positivity, associated symptoms, risk factors and Endoscopic findings. Chi- square test and Fisher's exact test was used in Statistical Analysis.

Results: There were 46 patients with a mean age of 62 years. *H. pylori* was detected only in 2 (4.3%) both Malay and Male among UGIB patients by Campylobacter-like organism (CLO) test. Comparatively, the prevalence of UGIB was higher in men than women 27(58.7%). The result forage analysis showed that UGIB was more common among the age group of 65 years and above accounting for 56.5%. The most common related symptoms were melena and epigastric pain. The leading causes of UGIB were peptic ulcer disease (41.3%), antral ulcer (15.2%) and duodenitis (15.2%).

Conclusion: *H. pylori* infection in upper gastrointestinal bleeding patients was very low in this study. UGIB was more common in elderly age and the main cause being peptic ulcer disease.

FM21

Sugar concentration mimicking composition of sugars in honey modulates tumour development in MNU-induced breast carcinoma in rats: a preliminary study

Sarfraz Ahmed & Nor Hayati Othman

Introduction: Breast cancer is one of the most common malignancies in women worldwide. Different types of animal models of breast cancer have been developed to investigate the various aspects of this malignancy. Honey sugars have been proven to be an effective agent against cancer. However, to date there is no study reported on the potential of honey sugars in inhibiting breast tumour development.

Objectives: To study the inhibitory effect of honey sugars (fructose, glucose, sucrose and maltose) on *N*-methyl-*N*-nitrosourea (MNU)-induced rat mammary carcinoma.

Methods: Fifteen Sprague-Dawley rats were randomly divided into 3 groups with 5 animals each (n=5). Ten animals were fasted overnight and received a single intraperitoneal dose (80 mg/kg body weight) of MNU. Group 1 was administered with only distilled water (negative control) and Group 2 was also administered with only distilled water (positive control). Group 3 was treated with honey sugars (fructose 40%, glucose 36.2%, sucrose 2.8%, maltose 1.2%; the solution concentration was made to mimic the sugar composition of honey) 1.0 g/kg daily when tumour diameter reached 10-12 mm in size. The treatment was given by oral feeding and terminated on day 120. After 16 weeks of MNU administration, clinical examinations to observe the tumours were recorded once a week. At the end of the study, all animals were sacrificed and tumours were collected for histopathological examinations.

Results: tumours were detected clinically in control group 2 and treatment Group 3. Tumours were of smaller size in sugar treated Group 3 compared to controls. The mean tumour weight and volume in the control group were 11.89 ± 1.01 g and 10.82 ± 0.40 cm³ respectively. Administration of honey sugars reduces the tumour sizes and volumes to 6.41 ± 0.60 g and 4.47 ± 0.20 cm³ for Group 3. Histopathological examination revealed that all the major carcinomas were adenocarcinoma.

Conclusion: Sugar concentration mimicking composition of sugars in honey has a modulatory effect on the severity of tumour development in MNU-induced breast carcinoma in rats.

FM22

Microorganism burden on hands of health care personnel (HCP) in HUSM

Wong Jun Leong, Amanina Aminuddin, Narizan Mohd Idris, Norliah Yahaya, Noraida Muhammad, Habsah Hasan and Siti Asma Hassan

Introduction: Healthcare-associated pathogens are most often transmitted from patient to patient on the hands of HCP. The flora colonized hands include transient and resident microorganisms. The transient flora are frequently associated with nosocomial infection. This microorganism can possibly infect their patient if they did not practice proper hand hygiene.

Objective: To determine the organism burden on the hands of HCP in HUSM.

Methods: This is a cross-sectional study conducted in HUSM. Ward 1Mutiara and 4Utara were randomly selected to represent ICU and open ward in HUSM. 25 HCP from each ward were randomly selected and their hands were printed on a blood culture plate irrespective of their hand hygiene practice. Sample from right and left hands of same HCP considered as a separate sample. The blood agar plates were processed according to sample processing in the microbiology laboratory. Any microorganism growth will be quantified and identified. The data analysed and describe as descriptive analysis.

Results: A total of 100 blood agar plate were processed and analysed. 71% of the sample grew more than 50CFU followed by 12% for colony between 25 to 50CFU and 17% had colony count less than 25CFU. Organisms identified include *Staphylococcus* sp, *Staphylococcus aureus*, *Acinetobacter* sp, *Enterobacter* sp, *Pantoea* sp, *Serratia* sp, *Pseudomonas* sp, *Klebsiella* sp, *Moraxella* and *Delftia acidovorans* and fungal. All of the organisms isolated were a sensitive strain.

Conclusions: Hands are contaminated with a lot of microorganisms and they are possible vehicle for cross contamination in the wards. Therefore proper hand hygiene is mandatory before touching/examine patients.

FM23

Classification of diffuse large B-cell lymphoma subtypes by immunohistochemistry staining in Malaysian population: comparison between Choi and Hans algorithms

Faridah Abd. Rahman, Chandramaya Sabrina Florence, Noor Azlin Muhd. Hanapi, Arni Talib, Noor Hamidah Hussin & Noraidah Masir

Introduction: Diffuse large B-cell lymphoma (DLBCL) is a heterogeneous group of lymphoma that forms the most common subtype of Non-Hodgkin's lymphoma (NHL) in Malaysia. DLBCL consists of two molecularly distinct subtypes: germinal centre B-cell like (GCB) and non-germinal centre B-cell like (non-GCB), where patients within the GCB group have better outcome than the non-GCB group. In the present study we classified a total of 160 cases of DLBCL into these subgroups using the Hans' and Choi's algorithm.

Objectives: 1) To determine the expression of CD10, BCL6, GCET1, MUM1 and FOXP1 in DLBCL using tissue microarray (TMA). (2) To compare the performance of newer germinal center specific antibodies in immunostain algorithm for DLBCL subgrouping.

Methods: TMA was constructed from 160 cases of DLBCL and immunohistochemistry was performed with GCET1, CD10, BCL6, MUM1 and FOXP1 antibodies. The expression of each antibody was used to classify the subgrouping according to the algorithms.

Results: In this study we found that by Hans algorithm, out of 160 cases, 46 (29%) showed GCB type and 114 (71%) was non-GCB type. Similar results were obtained using Choi's algorithm (GCB, n=46 and non-GCB, n=114)

Conclusion: Our results showed that in our population, the majority of DLBCL are of non-GCB type which is known to have poorer outcomes. In addition, we found that both algorithms produce comparable results in subgrouping the tumour.

FM24

Gastroprotective activity of *Tinospora crispa* against of ethanol induce gastric ulcer

Walaa Najm Abood, Mahmood Ameen Abdulla & Salmah Ismail

Tinospora crispa is a well-known in traditional medicine in the southwestern part of China to Southeast Asia, including Malaysia; the common names are Andawali, akar seruntum and *Menispermaceae*. It is used for treatment of fever, jaundice, hyperglycemia, hypertension, wounds, intestinal worms and skin infections. It is also used to treat tooth and stomach aches, cough, asthma and pleurisy. In this study we investigated the ability of ethanol leaves extract of *T. crispa* at dose (100, 200,500 and 1000 mg/kg) in the gastroprotective against ethanol induce gastric ulcer in the female SD rat and the defence mechanism depend on the function of prostaglandin E2 (PGE2), gastrin and pepsin, the results are analysed by using post hoc LSD test. The results have been showed significant ulcer protective effects by reduction the ulcer area and increase the ulcer inhibition. The gastroprotective effect of leaves extract appeared to be not only due to the anti-secretory action by reducing the acidity of the stomach, but also to the effects on mucosal glycoproteins by increasing of production mucus gastric mucosa in the pretreated group with leaves extract. Besides all the above results the pretreated with leaves extract is revealed the ability of the leaves in the enhancement gastroprotective by effecting on the increase the level of PGE2, and decrease in the level of gastrin. The result findings suggest that the *T. crispa* leaves extract has gastroprotective ability by enhancing many mechanisms to protect the damage of gastric mucosa layer.

FM25

Evaluation of NS1 and IgM test for rapid diagnosis of acute dengue infection

Om Parkash, Muhammad Amiruddin Abdullah, Fitrein Husin & Rafidah Hanim Shueb

Introduction: Dengue continues to be a major public health problem in tropical and subtropical countries. Until now, no effective vaccine or antiviral drugs available to combat this disease. Consequently, early and rapid diagnosis of dengue could help patient triage and care-management. In many local hospitals, dengue is commonly diagnosed via detection of dengue specific antibodies.

Objective: In this study we evaluated the effect of combined use of dengue NS1 antigen and dengue IgM antibody tests for rapid diagnosis of acute dengue infection.

Methods: In this study, 307 samples were collected from patients suspected of having dengue infection. Immunological assay for detection of dengue NS1 antigen and IgM antibody tests were done according to the manufacturer's instructions using Enzyme-linked immunosorbent assays (ELISA).

Results: Of 307 samples, 122 were positive for IgM and 119 for NS1 with the detection rates of 39.86 and 38.88% respectively. However, the detection rate increased to 52.94% when combined tests were used. Additionally, 40 IgM negative samples (22.34 %) were positive for NS1.

Conclusion: Combination of NS1 antigen and IgM antibody tests could increase the detection rate of dengue while eliminating the need for second serum sample.

FM26

A population study on thalassaemia and hemoglobinopathy among Jahut population

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Haemoglobinopathies and thalassaemias, with heterogeneous mutations and variable clinical presentation, pose a public health problem in multiracial Malaysia, with more than four thousand thalassaemia major patients, placing a heavy burden on blood transfusion and health care services. Although national thalassaemia registry had been set up in 2005 and ethnic specific spectra of thalassaemia mutations had been described for Malaysia's main ethnics, there is scarcity of reports on the Peninsula's Orang Asli. This study aimed to investigate the frequency of haemoglobinopathies and thalassaemias in a large settlement of Jahut, a sub-ethnic of Senoi in Temerloh, Pahang. With the ethical approval from UKMMC Ethics Committee. Peripheral blood was collected in EDTA tubes and subjected to full blood count analysis using automated Coulter LH750[®] and haemoglobin subtype quantification by automated capillary electrophoresis system. From a total of 188 subjects, 93 individuals showed thalassaemia red cell indices, haemoglobin E and/or haemoglobin Constant Spring. This finding calls for more efforts in raising Orang Asli awareness of thalassaemia and haemoglobinopathies in providing the best possible health care for the many more generations to come in order to avoid further complication related to these diseases.

FM27

Apoptosis of NCI-H460 human large cell lung carcinoma cells- induced by the dietary flavonol fisetin

Ganesan Vijaiyan Siva, Nagaiya Ravichandran, Gopal Suresh

Cancer is rated as one of the most dreadful diseases, next to AIDS. Many phytochemicals present in fruit and vegetables have been proposed as potential chemopreventive agents. Anticancer efficiency of fisetin was assessed using NCI-H460 large cell lung carcinoma cell line. Cell viability was performed using MTT assay in a dose and time dependent manner. The level of ALP and LDH release was reduced in time dependent manner on treatment with fisetin. Fisetin supplementation notably extenuated the alterations in Bcl-2, Bax and caspase-3 expression in NCI H460 cells. The expression of Bcl-2 was decreased while the levels of Bax and caspase-3 were increased in NCI-H460 cells upon treatment in a time dependent manner. Cellular analysis of NCI H460 cells with propidium iodide staining showed the cells clumping and formation of apoptotic bodies, characteristic of apoptosis in cells cultured with fisetin, but very few of these changes were observed in the control. Apoptosis in NCI-H460 cells was further confirmed using annexin V and PI stained flow cytometric analysis which revealed increased apoptosis in the NCI-H460 cells during fisetin treatment. Thus fisetin could be developed as a plausible anti-cancer agent against lung carcinogenesis and may be subjected to clinical trials.

FM28

Cytotoxic effects of Type I Collagen extracted from sea cucumber on human periodontal ligament fibroblast cell line

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Introduction: Collagen has attracted great interest as a promising biomaterial. The fabrication of a locally produced collagen would serve as a cost effective substitute for wide clinical applications.

Objectives: This study aimed to investigate the cytotoxic effects of type I collagen extracted from sea cucumber on human periodontal ligament fibroblasts (HPLFs).

Materials and methods: After determining the purification of type-I collagen extracted from the body wall of sea cucumber, *Bohadschia bivittata*, the cytotoxic activity was evaluated. The purified type-I collagen was incubated in alpha modification essential medium for 5 days at 37°C. At day 4, the HPLFs were cultured in 96-well plates for one day at 37°C and 5% CO₂, and consequently the extract was added into the wells at seven serial dilutions for 3 days. Then, 3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) was added for 4 hours, and the readings were recorded using an ELISA reader at 570 nm and 600 nm for the test and reference wavelengths, respectively.

Results: The MTT assay showed a cell viability of 198 and 311 per cent for the concentrations of 100 and 50 mg/ml respectively. The highest value (569%) was observed at 25 mg/ml. While 12.5 and 6.25 mg/ml showed cell viability values of 502 and 429 %, 3.125 and 1.562 mg/ml concentrations demonstrated 119 and 96% cell viability values, respectively.

Conclusion: Type-I collagen extracted from sea cucumber showed favourable cell viability values on HPLFs and has the potential to substitute vertebrate collagen. These favourable results, however, require further *in vitro* and *in vivo* studies.

FM29

Effects of aerobic dance exercise on immune functions in women

Wan Zuraida Wan Abdul Hamid, Marhasiyah Rahi & Foong-Kiew Ooi

Introduction: Physical activity has an influenced on immune function which crucially depending on the intensity of the exercise, exercise types, duration of exercise, age range and other related factors. However, many of us still unaware the effectiveness of aerobic dance exercise as well as a combination of aerobic dance exercise with honey supplementation on immune function in women.

Objective: To determine the effects of aerobic dance exercise on immune function in women

Methods: To investigate the effects of 8 weeks of aerobic dance exercise and combined aerobic dance exercise and honey supplementation on immune function in women. Forty four healthy sedentary women (25-40 year-old) were aged and weight matched, and subsequently being assigned into four groups with n=11 per group: Control (C), honey supplementation (H), aerobic dance exercise (Ex) and combined aerobic dance exercise with honey supplementation (HEx) groups. Aerobic dance exercise was carried out for one hour per session, three times a week for eight weeks. Honey drink was consumed by H and HEx groups, in a dosage of 20g of honey diluted in 300ml of plain water, for 7 days a week for 8 weeks. In HEx group, the subjects were required to consume honey drink 30 minutes before performing exercises. Before and after 8 weeks of the experimental period, blood samples were taken to determine the level of full blood count and the concentration of lymphocyte profiles by using flow cytometry.

Results: After 8 weeks of the experimental period, total lymphocyte counts were both increased in Ex and HEx groups and counts noted to be a bit higher in the HEx group though it was not significantly increased. T cytotoxic (CD8), T helper (CD4), and B cells (CD 19) counts were increased in Ex and HEx groups after 8 weeks, however, only T cytotoxic (CD8) and total B cells (CD19) counts ($p < 0.05$) were significantly increased in HEx group. Additionally, the percentage increase in T helper (CD4), T cytotoxic (CD8) and total B cells (CD19) count after 8 weeks were also increased in HEx group compared to the other three groups.

Conclusion: Both activities of aerobic exercise as well as a combination of aerobic dance exercise and honey supplementation do provide beneficial effects on immune functions in women and data shown that combined aerobic dance exercise and honey supplementation promise more enhancing immune functions.

FM30

Validation of microarray data via Quantitative Real Time Polymerase Chain Reaction for *PLEC1* gene in different severity of asthma

Nor Ezleen Qistina Ahmad, Mohd Khairul Hisyam Mohd Azimi,
Rahim Md Noah, Roslan Harun

Microarray method has its own limitations which was less sensitive, less specific and semi-quantitative. Previous study using microarray experiment reported that plectin 1 (*PLEC1*) gene was found to be upregulated in the peripheral blood B lymphocytes of patients with asthma. However, the data produced was not yet validated using more robust method. Therefore, this study aimed to investigate the difference between expression patterns of microarray and quantitative real-time polymerase chain reaction (qPCR) for *PLEC1* gene in different severity of asthma. The first parameter was to compare the expression between mild and moderate asthma whereas the second parameter was mild against severe asthma. Two technical replicates for both parameters and 6 biological replicates were used for all parameters. GAPDH gene was chosen as the internal control. Results were obtained from reverse transcribed RNA samples mixed with primers, ImmoMix™, EvaGreen® and distilled water; loaded into 96 well plates and run through the Biorad iQ-5 Real-time PCR detection system. Comparison between mild and moderate asthma shows up-regulation by 0.48 fold ($P=0.11>0.05$, 95 % CI); same as the microarray data that shows up-regulation by 1.7 fold. The second parameter, mild against severe asthma appear to be up-regulated by 0.025 folds ($P=0.02<0.05$, 95% CI). However the microarray data exhibit down-regulation by 1.2 fold in severe asthma. Many factors may influence the correlation between microarray and qPCR experiment, however, most sources of error can be controlled through good laboratory practices, experimental designs and rigorous normalization of the data.

FM31

Correlation between biomarkers of endothelial activation, inflammation, and oxidative stress status in subjects with low levels of High Density Lipoprotein (HDL-c)

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Introduction: Endothelial activation, inflammation and oxidative stress have been established as key events in initiation and progression of atherosclerosis. High-density lipoprotein cholesterol (HDL-c) is a negative risk factor for atherosclerosis.

Objective: To determine correlation between HDL-c and biomarkers of endothelial activation [soluble Vascular Cell Adhesion Molecule-I(sVCAM-I), E-selectin], inflammation [high-sensitivity C-reactive Protein(hsCRP), Interleukin-6(IL-6)] and oxidative stress [oxidized low density lipoprotein(ox-LDL), malondialdehyde(MDA)] and whether HDL-c is an independent predictor of these biomarkers.

Methods: Sixty-eight subjects, 29 males and 39 females [age (mean \pm SD) = 46.9 \pm 11.0 years] with low HDL-c levels (HDL-c \leq 0.6mmol/L and 0.7mmol/L for males and females respectively) and 76 age, gender, ethnicity, smoking, diabetic and hypertensive-matched normolipaemic controls (HDL-c \geq 1.0 and \geq 1.3mmol/L for males and females respectively) were recruited. Fasting blood samples were collected. Lipid profiles and hsCRP were measured using automated analyser (Cobus Integra 400, Roche, Germany). sVCAM-I, E-selectin, IL-6, and ox-LDL were measured using ELISA. MDA was measured by method adapted from Ledwozyw et al., (1986) based on the measurement of pink chromogen products at the 532 nm.

Results: E-Selectin, hsCRP and ox-LDL was inversely correlated with HDL-c levels ($p < 0.05$, $r = -0.25$, $p < 0.01$, $r = -0.42$, and $p < 0.05$, $r = -0.28$ respectively). No correlation were found between HDL-c and levels of sVCAM, IL-6, and MDA ($p > 0.05$). Using linear regression analysis, HDL was an independent predictor for E-selectin ($p < 0.05$) after correcting for the various confounding factors.

Conclusion: These findings suggest that there is increased endothelial activation, inflammatory, oxidative stress in subjects with low HDL-c levels and that HDL-c is an important predictor for E-selectin.

FM32

Neonatal mortality among low birth neonates in Aceh province, Indonesia

Satrinawati & Rosnah Binti Sutan

Background: Low birth weight (LBW) is defined as babies born with a birth weight less than 2,500 grams. LBW was the second caused of neonatal mortality in the world, include in Indonesia.

Objective: To assess factors related to neonatal mortality among LBW neonates in Aceh province, Indonesia

Methods: This a mixed methods with population based study. Unmatched case control used in the quantitative study with 500 LBW as sample (250 cases and 250 controls). The in depth interview used in qualitative study with 22 mothers and midwives as the respondent. The study conducted in 8 districts, in Aceh province, Indonesia. Logistic regression used for qualitative analysis

Result: Determinant factors of neonatal mortality among LBW were: male (OR=1.8; 95 % CI:1.0; 2.9), VLBW (OR=17.8; 95 % CI:6.2 ; 51.3), preterm birth (OR= 1.84; 95 % CI:1.0 ; 3.1), maternal ill (OR= 1.86; 95 % CI:1.0 ; 3.3), ANC < 4 times (OR= 2.28; 95 % CI:1.3 ; 3.9), didn't get early of breastfeeding (OR= 2.0 ; 95 % CI:1.0 ; 3.7), didn't get colostrums (OR= 3.5; 95 % CI:1.9 ; 6.4) and not exclusive of breastfeeding (OR= 5.5; 95 % CI:2.8 ; 10.7),

Conclusion: Family care in neonatal period gave a crucial impacted for LBW survival. Increased the family knowledge about LBW care was important. It would make an adequate care at home, so that decreased the neonatal death.

FM33

A study of visual evoked potentials (VEP) in traumatic optic neuropathy patients

Nurfahzura MJ, Adil Hussein, Wan Hazabbah Wan Hitam, Hanizasurana Hashim

Introduction: Traumatic Optic Neuropathy (TON) commonly occurs in young men and the majority of them involved in the motor vehicle accident (MVA). Flash VEP (fVEP) is helpful to detect the presence of TON in unresponsive patient but is not a diagnostic tool.

Objective: To determine the mean Flash VEP (fVEP) amplitudes and latency in patients with TON and its association with age and visual acuity.

Materials and Methods: A cross sectional study was conducted among 18 TON patients and 18 normal subjects in HUSM. fVEP amplitudes and latency were performed at 48 hours, 1 week and 1 month post injury. Descriptive statistics, repeated measures ANOVA and independent t-test analysis were performed.

Results: Majority of TON cases were associated with head injury secondary to MVA. From 18 TON patients, 83.3% were males and age between 18 to 49 years old. There was a difficulty in assessing the visual acuity 1/3 of patients at first review because they were in comatose state and were intubated. There was significant reduction in the mean fVEP amplitudes and latency in TON patients compared to the normal subjects. There were association in between mean fVEP N1 latency with age groups at 1 month ($p=0.048$), P1 latency with age groups at 48 hours and 1 month ($p=0.005$) and in between mean fVEP amplitudes with visual acuity at 1 month of injury ($p=0.042$).

Conclusion: There was significant reduction in the mean fVEP amplitudes and latency in TON patients. fVEP is. There were association in between mean fVEP amplitudes and latency with age groups and visual acuity.

FM34

Phytochemical, antimicrobial, toxicity and antiproliferative properties of *Selaginella doederleinii* Hieron water extract

J.T Priscilla, Sreeramanan S. , Ming-Thong Ong

Introduction: *Selaginella doederleinii* HIERON is a member of the family of Selaginellaceae, a perennial, fern like plant, spike moss. This herb is known in traditional medicine to clear heatiness, reduces toxicity, coughs, sore throat, jaundice, stop bleeding and promotes wound healing.

Objective: To evaluate the phytochemical compositions, antimicrobial, and toxicity activities of *Selaginella doederleinii* HIERON extract.

Methods: This herb was macerated and extracted using water (SDW) and ethanol (SDE) following the traditional preparation approach. Toxicity test using brine shrimp (BSLT), phytochemical tests, antimicrobial, antifungal and cytotoxicity cell-based assays were conducted.

Results: Phytochemical analysis revealed the presence of secondary metabolites like saponins and tannins. BSLT results showed low toxicity with 40.1 mg/ml as compared to the positive control, potassium dichromate showed a LD50 value of 0.01 mg/ml. SDW did not pose any antimicrobial properties could be due to insufficient concentrations of active antimicrobial compound(s) found in the extracts to be effective. Among the three cancer-origin cell line tested, HepG2 cells showed susceptibility towards SDW at 72 hours post-treatment with a LD50 value of 329 µg/ml whereas the susceptibility were not observed in both breast cancer origin cancer cell lines nor in Hs27 (non cancer origin cell line).

Conclusion: It can be suggested that SDW may pose properties that could be a contributing factor to the drug development in Malaysia. Future work with fractions would allow more prominent results of these extracts.

Subcutaneous Arteries Of Diabetics Showed Higher Cyclooxygenase-2, But Lower Nitric Oxide Synthase And Prostacyclin Synthase Protein Expressions

Siti Safiah Mokhtar

Background: Endothelial dysfunction is characterized by the impairment in the synthesis of endothelium-relaxing factors. The major endothelium-derived relaxing factors include nitric oxide (NO) and prostacyclin (PGI₂).

Aims: The aim of this study was to examine the protein expressions of endothelial nitric oxide synthase (eNOS), cyclooxygenase-1 (COX-1), cyclooxygenase-2 (COX-2), prostacyclin synthase (PGIS) and prostacyclin receptor (IP receptor) in the subcutaneous microcirculation of diabetic patients compared to non-diabetic controls.

Materials and Methods: Subcutaneous arteries were dissected free from tissues obtained from seven diabetic and non-diabetic controls who underwent lower limb surgical procedures. The blood vessels were examined for protein expressions by Western blotting and immunohistochemistry, using specific antibodies directed against eNOS, COX-1, COX-2, PGIS and IP receptors.

Results: Diabetics had an increased expression of COX-2 protein in subcutaneous arteries compared to the non-diabetics [COX-2 diabetic 23.5 (5.7), non-diabetic 11.4 (2.9), $P < 0.001$]. Protein expressions of eNOS and PGIS were reduced significantly in arteries from diabetic patients [eNOS diabetic 13.7 (3.8), non-diabetic 26.9 (1.8), $P < 0.001$; PGIS diabetic 14.2 (4.3), non-diabetic 21.6 (5.1), $P < 0.05$]. There were no significant differences in COX-1 and IP receptor protein expressions between the two groups.

Conclusion: The present findings demonstrated that human diabetes is associated with higher COX-2 but lower eNOS and PGIS protein expressions in the endothelium of subcutaneous arteries. This may help to determine the mechanisms of endothelial dysfunction observed in the diabetic microcirculation and lead to better targeted therapeutic strategies that would provide the way to revert dysfunction of endothelium.

FB2

Caffeic acid phenethyl ester a novel fibrinolytic agent on whole blood clot: A preliminary study

ME Abuzar, H Roslin, I Zamzuri, Zulkifli M.M, N Wan-Arfah, A Wan Zaidah

Background: Fibrinolytic system is engaged in many physiological and pathological processes. Fibrin degradation occurs in blood clots and can be induced by fibrinolytic agents typically through serine protease activation.

Objective: This study aimed to determine the fibrinolytic effect of caffeic acid phenethyl ester (CAPE) on whole blood (WB) clot through in vitro study.

Methodology: Standardized retracted WB clots were created and weighed. Pool platelets poor plasma (PPP) was prepared. WB clots were subsequently incubated with pool PPP and CAPE for varying incubation time 3, 6 and 9 hours. The WB clots were incubated with CAPE and pool PPP (control), the D-dimer (DD) measured and remnants of clot were again weighed. The tests were repeated and repeated measures ANOVA were performed for data analysis.

Results: There was an overall significant mean difference of DD between pool PPP and CAPE groups regardless to time ($P < 0.001$). There was a significant difference of mean DD between pool PPP and CAPE groups based on time ($P < 0.001$). The mean DD was higher in the CAPE compared to pool PPP groups for all the incubated times studied (3, 6 and 9hours).

The median weight of the WB clot post pool PPP and CAPE was significantly lower than pre pool PPP incubation and CAPE treatment ($p < 0.05$).

Conclusion: This preliminary work demonstrated that CAPE showed fibrinolytic activity using DD and clot weight by *in vitro* WB clot lysis study. CAPE is a potential novel fibrinolytic agent which needs more researches to be confirmed especially for clinical application.

FB3

Comparison of dose distributions for 6 MV photon beam in MAGAT gel and water phantom using Monte Carlo simulation

Mohammad Alijama & Ahmad Zakaria

Monte Carlo simulation method is considered to be the most accurate method for dose calculation in radiotherapy. The purpose of this study is to compare the dose distribution for 6MV photon beam in MAGAT (Methacrylic Acid, Gelatin and Tetrakis (hydroxymethyl) phosphonium chloride) gel dosimetry and water using Monte Carlo simulation. The Monte Carlo codes that were used to perform all dose calculation in this project are BEAMnrc, DOSXYZnrc and dosxyz_show codes. Primus Linear accelerator head geometry (Siemens Primus, USA) was modeled using BEAMnrc program to carry out Monte Carlo simulation. The DOSXYZnrc code was used to build MAGAT gel phantom and water phantom by defining voxels (size and material) of the phantom. The dosxyz_show software was used for representation and analysis of the isodose curves of the dose distribution for single and parallel opposed fields. The depth-dose data along the central-axis (PDD) and dose profile were calculated using Monte Carlo simulation for 10 x 10 field size of photon beam 6 MV linear accelerator. The dose distributions for parallel opposed fields were also calculated in MAGAT gel and water phantom. The depth-dose and dose profile that calculated in gel dosimetry showed very good agreement with that calculated in water. Also good match between the dose distributions for gel dosimetry and water using parallel opposed fields technique. In conclusion, MAGAT gel dosimeter has the potential to be a useful method to measure dose of 6 MV photon beam based on Monte Carlo simulation.

FB4

Chitosan dermal substitute and chitosan skin substitute contribute the acceleration of impaired full-thickness wound repair in irradiated rat

Mohd Hilmi Abu Bakar, Ahmad Sukari Halim, Asma Hassan

There are challenges among scientist as hair follicle stem cells (HFSCs) derived from a human hair follicle remain poorly expanded in culture medium and still requires a coating agent for proliferation in culture vessels. In the present study, the isolation, characterization and differentiation of HFSCs for chitosan based skin substitute application were performed. Scalp, 1cm by 1cm was collected from patients for neurosurgery or wound suturing procedure. Viability of HFSCs in defined keratinocytes serum free medium (KSFM) in coated plates and CnT07 medium in non-coated plates were compared. Differentiation of HFSCs into epidermis was carried out using CnT02-3D medium with confirmation by mouse monoclonal antibodies against human cytokeratin 6 and human involucrin. Co-culture between fibroblasts and HFSCs into chitosan were established at a density of $3 \times 10^6/\text{cm}^2$ and $1 \times 10^6/\text{cm}^2$ respectively. After 10 days of culture, the HFSCs became confluent and applicable for skin substitute application. Viability analyses using presto blue showed that the HFSCs culture in CnT07 with uncoated plates were significantly higher than HFSCs culture in KSFM with coated plates ($P < .05$). Molecular characterization of HFSCs via flow cytometry analysis demonstrated that the percentage of HFSCs expressing CD200 and K15 were 65.20 ± 3.16 and 72.07 ± 6.62 respectively. The population doubling time of HFSCs was 21.48 ± 0.44 hours in CnT07-uncoated plates and 30.73 ± 0.75 hours in KSFM-coated plates. After three weeks, chitosan based skin substitute was harvested for treating impaired wound healing in animal model. This method is a simple technique for HFSCs isolation and raises hope for the de novo skin or epidermal substitute preparation.

FB5

The effects of *Rhinacanthus nasutus* on oxidative enzymes in streptozotocin-induced diabetic rats

Pasupuleti Visweswara Rao & Gan Siew Hua

Introduction: *Rhinacanthus nasutus* is one of the important medicinal plants used in the treatment of various diseases.

Objective: The present study was conducted to evaluate the therapeutic efficacy of *Rhinacanthus nasutus* (*R. nasutus*) by investigating the activities of selected mitochondrial enzymes following its administration to streptozotocin-induced diabetic rats.

Methods: The rats were divided into five groups (n=6 each): Group I (normal controls), Group II (control rats treated with *R. nasutus*), Group III (untreated diabetic rats), Group IV (diabetic rats treated with *R. nasutus*) and Group V (diabetic rats treated with glibenclamide). The methanolic extract of *R. nasutus* was orally administered at 200 mg/kg/day while glibenclamide was administered at 50 mg/kg/day. All animals were treated for 30 days before sacrifice.

Results: The activities of both intra- and extra-mitochondrial enzymes, including glucose-6-phosphate dehydrogenase (G6PDH), succinate dehydrogenase (SDH), glutamate dehydrogenase (GDH) and lactate dehydrogenase (LDH) were measured in the livers of the animals. The levels of G6PDH, SDH and GDH were significantly reduced in the diabetic rats. However, the levels were significantly increased while the LDH levels exhibited a significant reduction following 30 days of *R. nasutus* treatment indicating that this herb can improve mitochondrial energy production.

Conclusion: Our results indicated *R. nasutus* altered the activities of the oxidative enzymes in a positive manner, indicating that it is a suitable herb to be further investigated for its antidiabetic activities.

FB6

Cryopreserved human amniotic membrane: a potential scaffold for dental pulp engineering

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Introduction: Tissue engineering demands a biomaterial scaffold that offers pertinent microenvironment for cell attachment, growth and differentiation. Human amniotic membrane (AM) is a natural growth factor reservoir with a distinctive structure and thus, is a good candidate for tissue engineering.

Objectives: To investigate the potential of de-epithelialized human cryopreserved AM (CAM) in providing microenvironment suitable for dental pulp tissue engineering.

Methods: Deciduous teeth stem cells (DTSCs) were seeded on both sides of the chemically de-epithelialized CAM; stromal and basement. Cell-scaffold attachment, cell proliferation, acute inflammatory cellular response and dentinogenic gene expression were analyzed using scanning electron microscopy (SEM), PrestoBlue assay, Multiplex PCR and reverse transcription-PCR (RT-PCR), respectively.

Results: Qualitative SEM analysis indicated the presence of filopodial-like processes of DTSCs as early as six hours after seeding on both sides of CAM. There were also indications of cellular anchorage and attachment, intercellular interactions, and proliferation. Cells seeded on basement side proliferated better than the ones on stromal side. There were inflammatory cytokine gene expression; TGF- β , GS-CSF, IL-6 and IL-8, with TGF- β being consistently expressed throughout the time intervals. However, the most significantly altered gene was IL-8. There were also expression of specific odontoblast genes; Col-1, DMP1 and OPN, being observed. Nevertheless, the mineralization marker, ALP, was not expressed. In addition, DTSCs continued to express high levels of stem cell gene markers.

Conclusion: Both sides of CAM provide a good microenvironment for dental pulp tissue engineering. However, additional inputs such as growth factors are needed to induce odontoblastic differentiation.

FB7

The potential of novel silica particles from rice husk as filler for fabrication of dental resin composites

Noor Sheeraz Che Zulkifli, Ismail Ab Rahman, Dasmawati Mohamad, Adam Husein

Objectives: The study evaluates the potential of novel silica synthesized from rice husk to be used as filler in dental resin composites. The properties are compared with those of experimental composite and commercially available nanocomposites, Filtek Z350 and Filtek Z250.

Methods: Two series of experimental dental resin composites were prepared by mixing the BisGMA and TEGDMA in a mass ratio of 54/46. 0.2 wt% camphorquinone and 0.8 wt% EDMAB were dissolved to these monomers as diketone and reducing agent to make composite light curing. The mixture was hand mixed with silanized silica filler at 67 wt% and 62 wt% filler loading. Silica with average particle size of 147 nm synthesized from rice husk used as filler were silanized with the silane 3-methacryloxypropyltrimethoxysilane (γ -MPS). The silanized silica particles were identified by thermogravimetry analysis (TGA), FTIR and ^{29}Si -NMR spectroscopy. Test were conducted to determine the potential of silica from rice husk to be used as filler in dental resin composites as determined by flexural strength, hardness, compressive strength, surface roughness and water sorption. The data obtained were statistically analysed by One-Way ANOVA with the level significance $p=0.05$.

Results: The positive response attained in term of similar properties with current applied commercial composites

Conclusions: The silica synthesized from rice husk has the potential to be commercialized as filler in dental resin composites and also raise the country's economy.

FB8

Stroop performance of healthy adults during ramadan fasting: fMRI study

Suzana Mat Isa, Ibrahim Lutfi Shuaib, Enrico Magosso, Weng Tink Chooi, Muhammad Haniff Mohd Rasli & Nariman Azif Abd Manaf

Introduction: The Stroop's test is widely utilised as index of attention and executive control. It relies on the observation that colour naming can be slowed down by concomitant presence of a contrasting colour word, as such task requires the ability to actively inhibit an over-learned response in favour of a more voluntary response. Functional magnetic resonance (fMRI) is a rapid imaging technique that employs echo planar imaging sequences for acquisition of brain images under stimulus and at rest.

Objectives: To investigate differences in brain activation during Ramadan fasting compared to non-fasting condition.

Methods: Eleven healthy right-handed adults of both genders completed the block-design Stroop test twice. The baseline scan was performed 2 weeks before Ramadan fasting, while the second scan during late-phase Ramadan fasting. Data, acquired employing Ax fMRI (BOLD), were analysed by percent signal change (PSC) and number of activated voxels (NOV) using statistical parametric mapping SPM8 and Matlab 7.8.0.

Results: Regions of interest analysis for bilateral middle frontal and inferior parietal gyrus showed no significant difference between baseline and fasting for PSC ($p>0.05$), NOV ($p>0.05$) and overall test score ($p>0.05$). Furthermore, no significant difference was found between congruent and incongruent tasks under either pre-Ramadan fasting or late phase Ramadan fasting for PSC ($p>0.05$) and NOV ($p>0.05$).

Conclusions: The Stroop's test results showed no effect of Ramadan fasting on brain oxygen consumption and attention in healthy adults measured by BOLD-fMRI.

Emotionality as predicted by psychobiological indices in young competitive athletes

Srilekha Saha, Soumendra Saha & Asyraf B R

Introduction: Athletic excellence crucially depends on mental toughness or more specifically the aspect of emotional flexibility and hardiness of the athlete. Since indices of mood can retrieve information regarding transient mood states, and projective evaluations can reveal hidden emotional crises and internal conflicts, psychobiological evaluations could be hypothetically introduced to provide etiological information related to cortical and autonomic functionality.

Objectives: Present study was aimed at identification of intricate relationships between autonomic indices of emotionality in predicting changes in transient as well as dispositional emotionality.

Methods: One hundred twenty six young-adult female competitive athletes volunteered as participants, who were subjected to evaluation of inner psychobiological status (measures of skin conductance activity and autonomic orienting response); assessment of mood states employing BRUMS and projective analyses of unconscious core of emotionality (employing Rorschach Ink-Blot Test) in the form of evaluation indices of resilience, constriction, rigidity, suspiciousness etc.

Results: Findings indicated corroborative relationships between differential aspects of inner core emotionality in predicting psychobiological indices of emotionality. Analyses of autonomic activation and arousal modulation and various indices of both tonic and habituation paradigm indices were found as significant predictor of changes in transient as well as dispositional emotional constellation observed in the athletes. Structural analyses along with multiple linear regression analyses could aptly identify differential possibilities of direct, inverse, moderating and supportive relationships between decomposition indices of autonomic orienting activity related to cognitive-affective and affective-motivational aspects of sports behaviour.

Conclusion: Inner core emotionality of the athletes was found associated with differential psychobiological indices of emotionality.

FB10

Effect of Perivitelline Fluid (PVF) from the fertilized eggs of horseshoe crab on the proliferation of MRC-5 fibroblast cell line

Nor Shamsuria Omar, Faizah Shaharom, Anil Chatterji, Ahmad Sukari Halim & Khairani Idah Mokhtar

The perivitelline fluid (PVF) obtained from the fertilized eggs of the horseshoe crab contains proteins such as hemagglutinin and hemocyanin which may exert important effects during the process of embryonic development. Previous study had shown that a constituent from this biological fluid can enhance growth and differentiation of chick embryonic heart. PVF also shown some pro-angiogenic activity using the *in vivo* chick embryonic chorioallantoic membrane (CAM) assay. Additionally, PVF might be important during the process of wound healing. In this study, the effective dose (ED_{50}) of PVF was determined on the proliferation of MRC-5 fibroblast cell line. MRC-5 fibroblast cell line (1×10^4 cells/well) was cultured in 96 well-plate using the growth medium containing 10% fetal bovine serum (FBS) without L-glutamine. Different concentrations of PVF (10, 50, 100, 200, 300, 400, 600, 700 and 800 $\mu\text{g/ml}$) were introduced to all wells and cells were incubated in a CO₂ incubator at 37°C for 24 hours. The cultured cells in the growth medium with 10% FBS (without L-glutamine and PVF) was used as a control. Proliferation of the cells was measured using mitochondrial dehydrogenase activity (MTT assay). The results showed that the proliferation of MRC-5 cells was more than 50% at the PVF concentrations of 10 to 500 $\mu\text{g/ml}$. The proliferation of MRC-5 cells were less than 50% when the PVF concentrations at 600 to 800 $\mu\text{g/ml}$. In conclusion, the most effective dose (ED_{50}) of PVF was 50 $\mu\text{g/ml}$ where ~99% proliferation of MRC-5 cells was observed.

FB11

Measuring respiratory output of aerosolised *Mycobacterium tuberculosis* by mask sampling

Eddy Seong Guan Cheah, Joanne Malkin, Gerrit Woltmann, Kumar Rajakumar & Mike Barer

Mycobacterium tuberculosis (Mtb) is transmitted in small aerosol droplets expectorated by individuals with active pulmonary tuberculosis (TB). At present, the World Health Organization estimates that TB is spreading at the rate of one person per second. Transmission of TB often occurs in indoor spaces that are poorly ventilated and overcrowded such as slum housing, prisons, nursing homes, correctional facilities, and refugee camps. Medical practice currently relies on sputum smear microscopy to assess the infectiousness of TB patients but the correlation between positivity and infectivity has been shown to be inadequate in several studies. Little is known about the relationships between respiratory Mtb output and case infectivity; one reason being the lack of an established method of sampling tuberculous aerosols and measuring the expectorated bacillary levels. We proposed the use of a novel mask sampling approach to address this question, and this preliminary study reports its development and evaluation. By coupling this sampling method to downstream detection by a modified mycobacteriophage amplification assay, we were able to detect and to some extent quantify the amount of respiratory-borne Mtb produced by TB patients who were positive by smear microscopy. A total of 11 out of 15 patients gave positive masks in which Mtb was detected in 14 out of a total of 25 masks processed. Preliminary data also suggested possible existence of patterns of infectivity among patients; however, this requires further investigation. With optimisation, the mask sampling method offers clear potential for quantitative assessment and downstream control of aerosol-infectious cases of many different infections.

FB12

Repression of *ck α* promoter activity by PMA through Ets-related transcription factor

Kuan Chee Sian, See Too Wei Cun & Few Ling Ling

Introduction: Choline kinase (CK) phosphorylates choline in the first step of CDP-choline pathway to yield phosphatidylcholine. CK has been implicated in carcinogenesis and muscular dystrophy. Previously, we have identified a negative regulatory Ets element in *ck α* promoter while Ets transcription factor has been reported to be modulated by protein kinase C (PKC). This study investigates the relationship between PKC and *ck α* promoter activity.

Objectives: To determine the effect of PKC activator (phorbol-12-myristate-13-acetate, PMA) and inhibitors (midostaurin and GO6983) on *ck α* promoter activity.

Methods: MCF-7 cells were treated with PMA at concentrations ranging from 10 to 30 ng/mL, for 6 to 24 hr. Inhibition of PMA effect was performed by treatment with 30 ng/mL of PMA and 20 μ M of midostaurin or GO6983. Promoter activity was determined by Dual-Glo luciferase assay system after the treatments.

Results: PMA decreased *ck α* promoter activity in a concentration- and time- dependent manner with maximal changes occurred at 30 ng/mL and 24 hr PMA treatment. Mutation of the Ets element markedly reduced the PMA-mediated repression of *ck α* promoter. The effect of PMA was abrogated by PKC inhibitors but not chronic PMA treatment. The results show that Ets-related transcription factor serves as the downstream effector of PKC in regulating *ck α* gene expression. PKC ζ is most likely the isoform involved, as it is known to be resistant to chronic PMA treatment.

Conclusion: We conclude that the *ck α* promoter activity is modulated by PKC-dependent pathway in MCF-7 cells through the Ets element at position between -1275 to -1252 of the promoter.

FB13

Prevalence of 45 bp Ins/Del Variant of Uncoupling Protein 2 Gene (UCP2) and Its Association with Obesity and Metabolic Syndrome among Kampar Health Clinic Subjects

Yee-How Say, Trishal Kaur & Phee-Phee Chia

Introduction: Common polymorphisms of the *UCP2* gene, a mitochondrial carrier protein, have been implicated in diabetes and obesity inconsistently among different populations.

Objectives: This study was conducted among Kampar Health Clinic subjects to study the association between the 45 bp Ins/Del variant in *UCP2* gene 3' UTR exon 8 and the prevalence of obesity and metabolic syndrome.

Methods: Anthropometric measurements, blood pressures and fasting blood glucose were obtained from 194 subjects (75 males, 119 females; 85 obese, 109 non-obese; 59 Malays, 97 Chinese, 38 Indians) by convenience sampling. Genotyping was performed using Polymerase Chain Reaction and statistical analysis was performed using SPSS software.

Results: The DD genotype was present in 126 subjects, ID in 60 subjects and II in 8 subjects, yielding a Minor Allele Frequency of 0.196. Waist-to-hip ratio was significantly higher ($p < 0.05$) for subjects with ID (0.93 ± 0.10) than subjects with DD (0.90 ± 0.08) and II (0.90 ± 0.06). Total body fat (36.6 ± 5.5 ; $p < 0.001$), subcutaneous fat (31.5 ± 7.3 ; $p < 0.001$) and fasting blood glucose level (12.3 ± 4.6 ; $p < 0.001$) were significantly greater in II subjects. The classification of metabolic syndrome was based on the presence of three assessable criteria according to the NCEP ATP III for Asian which includes abdominal obesity, high blood pressure and high fasting blood glucose. The presence of metabolic syndrome was not significantly associated with *UCP2* genotypes.

Conclusion: The II polymorphism of *UCP2* appears to be associated with central and overall obesity, but not metabolic syndrome.

FB14

Synergistic cytotoxic effect of a subfraction of *Strobilanthes crispus* and tamoxifen in MCF-7 breast cancer cells

Nik Nur Syazni Nik Mohd Kamal, Norazmi Mohd Nor, Nik Soriani Yaacob

Introduction: We have previously demonstrated that the dichloromethane-isolated subfraction of *S. crispus*, SC/D-F9, is highly cytotoxic to breast cancer cell lines, comparable to that observed with tamoxifen (Tam). However, the effect of combined treatment of SC/D-F9 and Tam on these cell lines has not been determined.

Objective(s): This study aimed to investigate the effect of SC/D-F9 on Tam-induced cell death of MCF-7 cells and the underlying mechanism(s) involved.

Methodology: Cytotoxicity of SC/D-F9, Tam and SC/D-F9+Tam on MCF-7 cells was quantified by LDH assay, while the mode of drug interaction was analyzed using CalcuSyn software. Apoptosis was determined using the Annexin-V-FLUOS Staining Kit, while the change in mitochondrial membrane potential (MMP) was measured using JC-1 dye. Both assays were analyzed by flow cytometry and fluorescence microscopy. The expression of apoptotic regulatory proteins was analyzed by Western blotting.

Results: The combined treatment of SC/D-F9 (EC₅₀) and Tam (various concentrations) resulted in significant increase in cell death at 24h compared to either SC/D-F9 or Tam alone. Synergistic effect of SC/D-F9+Tam on MCF-7 cells was observed, with combination index (CI) values of between 0.58 and 0.78 obtained. SC/D-F9 treatment resulted in significantly higher percentages of apoptosis of MCF-7 cells compared to DMSO or Tam treatment while SC/D-F9+Tam further increased the total number of apoptotic cells in 48 h. Both SC/D-F9 alone and SC/D-F9+Tam were also more potent than Tam at increasing depolarization of MMP. Our results also demonstrated that caspases (7, 8 and 9) were markedly activated by SC/D-F9 and SC/D-F9+Tam. Western blot analyses demonstrated that SC/D-F9 selectively affect the expression of apoptotic regulatory proteins and modulated apoptotic regulatory proteins activity induced by Tam.

Conclusion: Both intrinsic and extrinsic pathways of apoptosis occur simultaneously in MCF-7 cells following SC/D-F9 treatment. In addition, SC/D-F9 may play an important role in modulating Tam-induced apoptosis of MCF-7 cells. The use of SC/D-F9 in combination with tamoxifen could be a potential anticancer adjuvant in breast cancer treatment. The synergistic role of SC/D-F9 with tamoxifen as anticancer agents remains to be determined and warrants further studies to ensure its safety and efficacy.

Influence of KCNH2 polymorphisms on the QTc interval in patients receiving Methadone Maintenance Therapy (MMT)

Muslih Al, Nasir Mohamad, Zalina Zahari, Nurfadhina Musa, Basyirah Ghazali, Muhammad Irfan Abdul Jalal & Rusli Ismail

Introduction: Achieving targeted dose of methadone in MMT can be complicated by prolonged QTc intervals. It has however been suggested that the gene for potassium voltage-gated channel (*KCNH2*) influences the QTc intervals.

Objective: To investigate the relationship between *KCNH2* polymorphisms and QTc intervals among patients treated with MMT.

Methods: The samples comprised 111 opiate-dependent patients attending methadone clinics. The QTc intervals were determined using 12-lead ECG machine. *KCNH2* polymorphisms were determined using a nested allele specific multiplex PCR. Data were analyzed using SPSS.

Results: QTc intervals averaged 408 and ranged from 369 to 500 (SD 24). There was a significant difference of mean QTc intervals between carriers of 1539C>T (F513F, Phe513Phe) genotypes [$F(2, 108) = 4.072, p = 0.020$]. Patients homozygous for 1539T-allele [418.4 (24.8)] had significantly higher QTc intervals than heterozygotes patients [402.8 (23.7)]. There was no significant difference in mean QTc intervals between patients homozygous for 1539C-allele compared to heterozygotes and patients homozygous for 1539T-allele and homozygotes for 1539C-allele. Allele 1956T>C, 2350C>T and 2690A>C had no functional significance for QTc interval lengths.

Conclusion: Allele 1539C>T of *KCNH2* gene may influence QTc interval prolongations in a subgroup of patients with opiate dependence treated with methadone.

FB16

Angiotensinogen (AGT) gene, M268T polymorphism in coexistent diabetes, hypertension and nephropathy

Syed M. Shahid, Rozeena Shaikh, Syeda N. Nawab, Muhammad Ismail and Abid Azhar

Objectives: Diabetic nephropathy is the leading cause of deaths due to end stage renal disease. The AGT gene has got strong correlation with plasma AGT level and blood pressure. This study investigates the possible association of M268T polymorphism of AGT gene in diabetic, hypertensive and nephropathy patients.

Methods: Blood samples from 115 diabetic patients, 115 diabetic hypertensive patients, 110 diabetic nephropathy patients and 110 normal healthy subjects as control were collected followed by informed consent. ARMS-PCR was used to genotype the DNA isolated from subjects for AGT M268T using specific primers.

Results: The frequency of AGT genotypes for CC, CT and TT in diabetic patients was found to be 08%, 86% and 06% respectively. In diabetic hypertensive patients genotype CC was 2.7%, CT was 91.2% and TT was 5.3%. In diabetic nephropathy patients the frequency of genotype CC was 9.5%, CT was 40.5% and TT was 50%. The CC, CT and TT genotypes, and C and T alleles distributions were significantly different in diabetes ($\chi^2=8.606$, $p=0.00081$), diabetic hypertensive ($\chi^2=6.245$, $p=0.0014$) and diabetic nephropathy ($\chi^2=10.674$, $p=0.000022$) patients as compared to controls. The allele distributions were significantly different in diabetic vs. nephropathy patients ($\chi^2=24.254$, $P=0.00000128$). The nephropathy patients have significantly higher prevalence of T allele and TT genotype.

Conclusion: The frequency of TT genotype was found prevalent in diabetic nephropathy. Results indicated a clear relationship of T allele polymorphism in AGT gene with nephropathy in diabetes mellitus. It is suggested to take a close look to frequency of T allele polymorphism while screening diabetic patients to get them rid of progressive renal impairment leading to end stage renal disease.

FB17

Gene expression analysis of specific markers in rabbit primary epidermal keratinocytes

Marini M, Kannan TP, Dorai AA, Lim CK, Khairani IM, Siti Fadilah A, Fareha AC & Norlaily H

Introduction: Keratinocyte is the predominant cell type in the epidermis constituting about 95% of the cells and found in the basal layer of the skin. Gene expression is the process by which genetic information is transcribed from deoxyribonucleic acid (DNA) into diffusible messenger ribonucleic acids (mRNA). Analyses of these variations in gene expression will lead to a better understanding of disease status, targeting of drugs to specific cells, tissues or individual's development of agricultural products

Objective: To determine the gene expression of keratinocyte markers using Real-Time Polymerase Chain Reaction (Real-Time PCR).

Methods: A piece of skin approximately 2cm x 2cm was harvested from the dorsum of New Zealand White male rabbits (*Oryctolagus Cuniculus*) and digested in 0.6% dispase solution at 4°C overnight. The keratinocyte cells were cultured in CnT-57 growth medium. The expression of rabbit keratinocytes for Keratin 5, Keratin 8, Keratin 6a, Keratin 13 and Filaggrin was done using TaqMan® Real-Time PCR assay.

Results: The expression level of Keratin 5 and Keratin 13 was found to be increased in passage 5, Keratin 6a and Keratin 8 at passage 2 and Filaggrin at passage 4.

Conclusion: Keratin 6a and Keratin 8 proved to be early markers in differentiation of keratinocytes, followed by Filaggrin in the intermediate stage and Keratin 5 and Keratin 13 at the late stage.

FB18

The role of PPAR γ ligands in inducing Foxp3 gene expression in natural T-regulatory (nTregs) Cells of Type 1 Diabetes (T1D) Mice

Nor Effa S.Z, Yaacob N.S & Norazmi M.N

Introduction: PPAR γ is known to have anti-inflammatory properties in immune cells, while Foxp3 gene confers immunosuppressive effects on natural T-regulatory (nTreg) cells. Understanding the interaction between these transcription factors in nTreg cells could enhance our understanding of the immunopathogenesis of T1D.

Objective: To determine the influence of PPAR γ ligands on the expression of Foxp3 gene in activated nTreg cells from T1D mice.

Methodology: Splenic nTreg cells from Non-obese Diabetic (NOD) and Non-obese Diabetic Resistant (NOR) mice were isolated and cultured with anti CD3/CD28 antibodies and IL-2, in the presence of the PPAR γ agonists, ciglitazone or 15d-prostaglandin-J2, with or without the presence of GW9662, a PPAR γ antagonist. Cell proliferation was determined by CFSE-labelling and measured by flow cytometry. Foxp3 mRNA transcription was measured by Absolute Quantitative Real-Time PCR (qPCR).

Result: Ciglitazone induced Foxp3 mRNA expression in NOD, but not in NOR mice, whereas 15d-prostaglandin-J2 did not alter Foxp3 expression in these mouse models. The addition of GW9662 reversed the effect of ciglitazone in NOD.

Conclusion: While the natural PPAR γ ligand, 15d-prostaglandin-J2, had no effect on Foxp3 expression, ciglitazone, a synthetic PPAR γ ligand, upregulated the expression of Foxp3. Given the fact that PPAR γ is involved in downregulation of the immune response, the findings in this study suggest the potential role of ciglitazone in dampening the pathogenesis of T1D. Furthermore, the potential protective effect of PPAR γ ligands in other autoimmune conditions should be examined.

Genome typing of *Shigella sonnei* in North Eastern Malaysia in Hospital Universiti Sains Malaysia (HUSM) using Pulsed-Field Gel Electrophoresis

Heng Fu Liang, Pavithrah Shunmugam, Kirnpal Kaur Banga Singh, Asma Ismail & Phua Kia Kien

Introduction: *Shigella* causes acute intestinal infection called shigellosis, which is characterized by bloody diarrhoea and fever. *Shigella* is estimated to cause 90 million cases and 108,000 deaths annually, worldwide. Recently, *Shigella sonnei* was found to be the dominant serotype in Kelantan. However, there is no data regarding its genetic diversity in this state.

Objectives: The objective of this study was to investigate the genetic diversity of *Shigella sonnei* isolates in HUSM Kelantan.

Methods: Between the year 2002-2005 and 2009-2012, 43 *Shigella sonnei* isolates, confirmed by biochemical and serotyping, were obtained from the Department of Medical Microbiology and Parasitology, HUSM. Pulsed-Field Gel Electrophoresis (PFGE) was used to analyze the isolates using CDC PulseNet protocol and Bio-Rad CHEF MAPPER XA System. Dice Coefficient (F value) was calculated and a dendrogram was constructed using Fingerprinting Quest™ software, and interpreted according to guidelines from Tenover *et al.* (1995).

Results: Four distinct clusters (designated as SS01 to SS04) were found using XbaI enzyme. PFGE was able to discriminate the 43 samples into 33 pulsotypes; SS03 was predominant and accounted for 63% of the total isolates. Cluster SS01, SS02 and SS04 made up the remainder at 7%, 7% and 16%, respectively, with the remainder 7% unassigned.

Conclusion: These findings showed that *Shigella sonnei* strains in HUSM are heterogenous and are derived from different clones. PFGE method was able to distinguish and characterize the strains. This information can aid epidemiological investigations to determine and eradicate the sources of transmission of the disease in the state.

FB20

Molecular cloning and expression of recombinant D6 protein in *Pichia pastoris*

Tan Wee Yee, Khoo Boon Yin, Darah Ibrahim & Chew Ai Lan

D6, also known as Chemokine Binding Protein 2 (CCBP 2), is a type of decoy receptor. The protein plays a role in scavenging the CC chemokines, and hence, it is useful in manipulating chemokines in various diseases including cancers. The objective of the study is to generate a recombinant clone of D6 and further express the recombinant functional D6 protein using a yeast expression system. In this study, total RNA was isolated from MDA-MB-231 breast cancer cells to generate full length D6 cDNA. A one-step RT-PCR was then carried out using the isolated total RNA, gene specific primers and Pfu DNA polymerase, under an optimized PCR profile. PCR product was ligated into TA cloning vector, pTZ57R/T, and then transformed into electrocompetent *E.coli* cells. Upon plate selection and restriction analysis, the positive clones were sequenced and analyzed by ClustalW. DNA sequencing results showed that the D6 cDNA was 1155 bp in length with no mismatches, deletions and insertions. The sequenced DNA fragment was then ligated into a yeast expression vector, pPICZ α A, and cloned into *Pichia pastoris* for recombinant protein expression. The recombinant protein was expressed in a shake flask system with BMMY medium and agitated at 250 rpm at 30°C. Methanol was added to the culture medium to a final concentration of 0.5% (v/v) at every 24 hours. Secreted recombinant D6 protein in the culture medium was quantified by ELISA. Maximum expression of recombinant D6 protein (10 ng/ml) by *Pichia pastoris* was achieved after 96 hours with a dry cell mass of 117 mg/ml. The expression conditions will be improved to increase the yield of the desired recombinant D6 protein for future breast cancer study.

FB21

A novel PCR target for specific identification of *Salmonella enterica* Serovar Enteritidis

Yeoh Chiann Ying, Phua Kia Kien, Goay Yuan Xin, Zaidah Abdul Rahman, Prabha Balaram and Asma Ismail

Introduction: Non-typhoidal *Salmonella* is increasingly recognized as an important food borne pathogen worldwide, resulting in 3 million deaths annually. *Salmonella* Enteritidis predominate amongst the top most commonly isolated serotype reported worldwide. Although culture method is the gold standard for diagnosis, this method has many limitations such as labor-intensive, time-consuming and lack of specificity. Therefore, an alternative method is required that is rapid and specific for the detection of *S. Enteritidis*.

Objective: The aim of this study was to identify a unique DNA sequence of *S. Enteritidis* which can be used to develop a laboratory test for discrimination of *S. Enteritidis* from other *salmonella* pathogens.

Methodology: Putative gene sequences of *S. Enteritidis* were identified by comparing genomic sequence data of *S. Enteritidis* with other bacteria in the NCBI gene bank using bioinformatic tools, ie. serovar specific gene sequences were tested by carrying out similarity-search against all known bacteria DNA sequences using BLAST software. Primers based on the detection targets were designed and tested against 27 PFGE-confirmed *S. Enteritidis* isolates and 30 other enteric pathogens using an optimized PCR assay.

Results: The results showed that the primer set SEN-1 was able to specifically amplify a serovar-specific gene of *S. Enteritidis*. The test was successfully validated with 27 PFGE-confirmed *S. Enteritidis* strains and 30 other enteric pathogens with 100% sensitivity and specificity.

Conclusion: The findings suggest that the putative gene designated SEN is specific for *S. Enteritidis* based on both *in silico* and wet lab methods. This novel DNA sequence could be used in a multiplex PCR assay for specific detection of *S. Enteritidis*.

FB22

Epidemiological and genetic relatedness of *Salmonella typhi* isolates from Kelantan using RAPD-PCR method

Ja'afar Nuhu Ja'afar, Nur Fatimah Mohammed Zaidi, Bhore Subhash J, Prabha Balaram, Asma Ismail & Phua Kia Kien

Introduction: Molecular fingerprinting techniques have enabled epidemiologist to determine the genetic relatedness of similar organisms more accurately and faster. However, none of these techniques is optimum for all organisms.

Objective: In this study, Random-Amplified Polymorphic DNA PCR (RAPD-PCR) method was used to determine the genetic relatedness of *Salmonella Typhi* (*S. Typhi*) isolated during a 7-year period in the state of Kelantan.

Methodology: Fifty *S. Typhi* isolates, randomly selected from the period 2003-2009, were fingerprinted using two RAPD primers (E14 and E16). The two primers fulfilled the criteria set during a preliminary screening, i.e clear and reproducible bands. A data matrix was created by scoring "1" for presence of band and "0" for absence of band, and used as input file for the NTSYS-pc software for phylogenetic analysis.

Results: Sixty-eight percent (N=34) of the isolates were from typhoid outbreaks, and the remainder 32 percent (N=16) were from sporadic cases. Primer E14 produced 4-12 bands (307bp-3.7kbp) and E16, 3-8 bands (257bp-2.5kbp) per isolate. Data matrix analysis showed 28 different band profiles with 3 clusters for E14, and 13 profiles with 4 clusters for E16. An isolate was not typeable with either primer probably due to DNA denaturation. The discrimination indices for primers E14 and E16 were 0.96 and 0.61, respectively. No significant association in profiling or clustering was observed between isolates for: 1) year of isolation, or 2) whether outbreak or sporadic isolates.

Conclusion: Results showed the clonality of *S. Typhi* in this endemic area, and that outbreaks of typhoid were probably due to within rather than from an outside source.

FB23

The effects of asiaticoside of *Centella asiatica* on the production of IL-12 and no mediators in J774A-1 cell line against *Salmonella typhimurium*

Shalini Michael & Rapeah Suppian

Introduction: *Salmonella typhimurium* (*S.typhi*) a causative agent of typhoid fever in humans is believed to be a major health problem globally. This pathogen is believed to survive and replicate within mononuclear or polymorphonuclear phagocytes. The inhibition of phagosome-lysosome fusion is an important factor for its survival within macrophages. Asiaticoside of *C. asiatica* has been proven to suppress myeloperoxidase activity (MPO), suggesting it to be a potent anti-inflammatory agent.

Objective: The objective of this study is to evaluate asiaticoside activity on the bactericidal activity of J774A-1 macrophage against *S. typhi*.

Material and method: Asiaticoside compound were diluted into DMSO and treated 1 hour with macrophage before being infected with *S.typhi* and incubated 24 hours at 37°C in 5% CO₂ before the supernatant is collected. MTT assay were then used to identify cell viability while Griess reagent kit and ELISA were used to detect NO production and IL-12 production using the obtained supernatant respectively.

Results: The macrophage treated with asiaticoside and infected with *S. typhi* has shown to reduce the production of NO and IL-12 pro-inflammatory mediators. At the concentration of 100 µg/ml, the NO production has reduced to 130 µm while the IL-12 production reduced to 100 ng/ml. the overall results decreases at dose dependent manner.

Conclusion: The asiaticoside is a potent compound that can be used to reduce the NO and IL-12 pro- inflammatory mediators in *S .typhi*- infected macrophage.

FB24

Detection of gene expression markers in stem cells isolated from amniotic membrane

Nurul-Hidayat, Y., Alshehadat S.A., Kannan T.P., Suzina S.A.H. & Azlina A.

Introduction: Different population of cells have different features which can be identified through specific gene markers. This could then be applied to classify the cell types including stem cells.

Objective: To detect the presence of the stem cell markers (nestin, nanog and rex1) in human amniotic membrane mesenchymal stem cells (HAMMSCs) by reverse transcriptase (RT)-PCR technique.

Methods: HAMMSCs were isolated according to the method previously published with slight modifications. The total RNA was extracted from the third passage of HAMMSCs using the RNA isolation kit (analytikjena, Germany). Using One-Step RT-PCR kit (Qiagen, Germany), the genes were amplified and subjected to agarose gel electrophoresis. The image of electrophoresed gel was captured by Gel Doc XR (Bio-Rad, USA) image analyzer. Beta-actin was used as a housekeeping gene while stem cells from human exfoliated deciduous teeth (SHED) acted as a control.

Results: The results showed the gene expression level of nestin (multipotent neural stem cell marker) was high in both HAMMSCs and SHED. HAMMSCs showed a low expression of pluripotent stem cells associated marker, nanog and the embryonic stem cell marker, rex-1 was the least expressed among all.

Conclusion: The current gene expression study based on the detection of the markers in HAMMSCs ascertains its stem cell characteristics.

Molecular Screening of Uncoupling Protein Genes (UCP1, 2, 3) and α 2B-Adrenergic Receptor Gene (ADRA2B) Single Nucleotide Polymorphisms (SNPs) and Their Association with Obesity-Related Anthropometric Parameters among Setapak Malaysian Subjects

Yee-How Say, Kah-Hui Lee & Yogambigai Arumugam

Introduction: *UCP1,2,3* and *ADRA2B* genes encode proteins involved energy metabolism homeostasis and their common SNPs have been implicated in obesity development inconsistently among different ethnic populations. **Objective:** This study was conducted among university students and residents of Setapak, Kuala Lumpur to study the association of *UCP1* -3826A/G, *UCP2* 45bp I/D, *UCP3* -55C/T and *ADRA2B* 3GluDel SNPs with obesity-related anthropometric parameters.

Methods: Anthropometric measurements and blood pressures were obtained from 191 subjects (106 females; 90 overweight; 46 Malays, 98 Chinese, 47 Indians) by convenience sampling. Genotyping was performed using PCR-RFLP and statistical analysis was performed using SPSS software.

Results: The overall Minor Allele Frequency for *UCP1*, *UCP2*, *UCP3* and *ADRA2B* SNPs were 0.51, 0.12, 0.29 and 0.73, respectively, indicating that mutant alleles of *UCP1* and *ADRA2B* are very prevalent among the Malaysian subjects. The distribution of *UCP3* -55C/T genotypes and alleles was significantly different among gender, but only among lean and Chinese subjects when analysed separately, while the pulse rate was significantly lower in subjects with CC genotype and C allele. The prevalence of *UCP1* -3826A/G alleles was associated with ethnicity among overweight subjects only, while *UCP2* 45bp I/D was associated with ethnicity generally. All obesity-related anthropometric parameters were not significantly different among all genotypes and alleles, while logistic regression found that overall and central obesity were also not associated with the four SNPs.

Conclusion: Although the distribution of genotypes and alleles of the SNPs might be significantly different among ethnicities, these SNPs had insignificant effect on obesity development among Malaysian subjects in this study.

FB26

Multiple exonic deletion of TSC2 gene in a Malaysian Patient with Tuberous Sclerosis Complex (TSC)

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Patient: We identified in our cohort, a male patient, aged 5 years with 3 siblings, diagnosed as a definite case of TSC showing 7 major and 2 minor features, based on the 1998 revised clinical diagnostic criteria. Informed consent was obtained from the patient's parents prior to blood taking.

Objective: To detect mutation of *TSC2* gene in a Malaysian patient with TSC.

Methodology: Genomic DNA was extracted from whole blood using commercially available kit. The DNA was subjected to SALSA MLPA P046-C1 *TSC2* probemix (MRC-Holland). Results were analysed in Coffalyser.Net software.

Result: We identified continuous deletion of 6 adjacent exons (exon 26, 27, 28, 29, 30 and 31) of *TSC2* gene, designated g.del_ex26-ex31;c.2970-3886del917bp;p.S990R-FsX1016.

Discussion: The deletion spanned a coding region involving 917 nucleotides. Based on this, we predicted that a premature stop codon will appear at position 77 of exon 32. This will lead to a truncated tuberlin protein with the possibility of loss of function. A functional tuberlin protein is crucial for the formation of tuberlin-hamartin dimer, a tumor suppressor complex. Therefore, we suggest that the continuous 6-exon deletion of *TSC2* gene is the cause of TSC manifestation in this patient.

Conclusion: We identified a *TSC2* gene deletion of exons 26 to 31 that have caused manifestations of Tuberous Sclerosis Complex in a Malaysian patient. This mutation has never been described elsewhere.

Study on Prevalence and Intensity of Urinary schistosomiasis infections among school children and adults in Wamakko town, North-western Nigeria

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Introduction: Schistosomiasis is considered a major public health problem causing high morbidity and mortality especially during the young age in North-western Nigeria.

Objective: To determine prevalence and intensity of urinary Schistosomiasis infection among school children and adults in Wamakko town, Nigeria.

Methods: A Cross sectional epidemiological study was conducted between November 2011 and September, 2012. A total of 300 urine samples involving subjects aged between 5 to 30 years and above were collected and analysed for the eggs of *Schistosoma haematobium* using Standard filtration techniques. Simple random sampling and interviewed structured questionnaire was used to obtained socio-demographic data of the subjects. Statistical analysis using SPSS 20 version in which $p < 0.05$ was set as significant.

Results: Of the 300 samples analysed, 115(38.3%) were found to be infected. Higher infection rate among males 110 (43.7%) than females 5(10.4%), was observed ($p < 0.05$). Males had higher mean eggs intensity of 134 eggs/10 ml urine when compared to females 18.9 eggs/10ml urine. Highest infection was observed among 10-14 years, with 51.3%, while least infection occurred in 20-24 years with 19.0%,.Fishermen had higher prevalence and intensity (66.0%) .While the least infection rate occurs in house wives with 7.7%.

Conclusion: Urinary Schistosomiasis was endemic in the area studied and school aged children and those engaged in fishing are the most infected and are at high risk of being infected due to their exposure to infected water. Mass Drug Administration (MDA) and awareness should be intensified to halt the infection cycle.

FB28

Mediational effects of self-efficacy dimensions in the relationship between knowledge of Dengue and Dengue Preventive Behaviours to control Dengue Fever during outbreaks

Affendi Isa, Paul R. Hunter, Yoon K. Loke, Jane R. Smith & Alexia Papageorgiou

Introduction: Dengue fever is an endemic in Malaysia and Terengganu, with frequent major outbreaks in the urban areas.

Objective: To examine the role of self-efficacy dimensions in mediating the relationship between dengue knowledge and dengue preventive behaviours to control dengue outbreaks using Structural Equation Modeling (SEM).

Methods: Respondents were 280 adults recruited from 27 post-outbreak villages in state of Terengganu, east coast of Malaysia. Measures of health promotion and educational intervention activities and types of communication during outbreak, level of dengue knowledge, level and strength of self-efficacy and dengue preventive behaviors were obtained via face-to-face interviews and administered questionnaires.

Results: A structural equation model tested and fit the data well ($\chi^2 = 71.659$, $df = 40$, $p = 0.002$, $RMSEA = 0.053$, $CFI = 0.973$, $TLI = 0.963$). Mass media, local contact and direct information-giving sessions significantly predicted level of knowledge on dengue. Level and strength of self-efficacy fully mediated the relationship between knowledge on dengue and dengue preventive behaviours. Strength of self-efficacy acted as partial mediator in the relationship between knowledge on dengue and dengue preventive behaviours.

Conclusions: To control and prevent dengue outbreaks by behavioural measures, health promotion and educational intervention during outbreaks should now focus on increasing level and strength of self-efficacy as to link the existing knowledge to dengue preventive behaviours using persuasive approaches through mass media, local contact and direct communication methods.

FB29

Effect of leptin and adiponectin on ICAM-1 and E-selectin secretion by human coronary artery endothelial cells

Noor Aiwa R., Froemming, G.A.R., Effat, O., Nawawi, H., Singh, H.J.

Introduction: Obesity is now considered a low inflammatory state with generalized endothelial activation underlying the risk for diseases like hypertension, diabetes mellitus, atherosclerosis and ischaemic heart disease. The precise link however remains unclear. Leptin levels are raised while adiponectin levels are reduced in obesity. The effect of these on endothelial cell function is not well known.

Objective: This study therefore investigates the effect of leptin and adiponectin on ICAM-1 and E-selectin secretion by human coronary artery endothelial cells (HCEAC) in vitro.

Methods: HCAEC at the seventh passage were divided into four groups and incubated for 24 hours at 37° C and 5% CO₂ as follows: Control, leptin-treated (100ng/ml leptin), leptin-adiponectin-treated (100ng/ml leptin + 30 µg/ml adiponectin) and adiponectin-treated (30 µg/ml adiponectin) groups. Supernatants were analysed for ICAM-1 and E-selectin using ELISA. Data were analysed using one-way ANOVA and post-hoc analysis.

Results: Compared to control, ICAM-1 level was significantly higher in leptin and leptin-adiponectin-treated groups ($P < 0.01$). ICAM-1 level was also significantly higher in leptin-adiponectin group when compared to leptin-treated group ($p < 0.01$). Similarly, E-selectin levels were also significantly higher than control in leptin-treated and leptin-adiponectin-treated groups ($P < 0.01$) and between the latter two groups ($p < 0.01$). No significant difference was evident between control and adiponectin-treated group.

Conclusion: Leptin increases the secretion of ICAM-1 and E-selectin from HCEAC, which are further increased in the presence of adiponectin. These adipokines might have a significant role in the inflammatory and pro-atherogenic state of obesity

FB30

Genotyping of oral bacteria in children with Early Childhood Caries

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Introduction: Early childhood caries (ECC) is a multi-factorial infectious disease affecting pre-school children. Oral microorganisms, considered as one of the primary etiological factors in ECC have not been completely identified. Molecular genotypic methods established for identification of oral micro-organisms have been proven to be better than the previous conventional methods.

Objective: To identify oral bacterial genotypes in children with early childhood caries by using 16S ribosomal RNA gene sequence.

Methods: Children below 71 months old with caries were enrolled. Plaque and Dentine samples were collected from over sound tooth structure and carious lesions separately. The genomic DNA was extracted from all samples, subjected to 16S rRNA PCR amplification and the end products were cloned into pCR®2.1-TOPO® Vector. The positive clones were sent for sequencing. Identification of the bacterial clones was performed using BLAST search against GeneBank database.

Results: Three hundred and sixty clones were randomly selected from samples obtained from intact dental surfaces (Plaque) and carious lesions (Dentine) sites (180 clones per group). From both groups, various bacterial genera and species were identified. *Streptococcus mutans* was the predominant species in carious dentine, while it was not significantly present over healthy tooth surfaces. On the other hand, other bacterial species found predominantly in plaque were *Fusobacterium nucleatum* spp. *Polymorphum* and *Streptococcus mitis*, which was not detected in the carious dentine group.

Conclusion: Molecular techniques provide better understanding of the oral bacteria involved in ECC which can pave a way for preventing or minimizing ECC.

Preliminary screening of cytotoxic properties of *Baccaurea angulata* in several human cancer cell lines in vitro

Mohammad Syaiful Bahari Abdull Rasad, Fairuz Ayuni Mohd Unzir, Nor Atikah Baharum, Norazlanshah Hazali, Muhammad Ibrahim, Nurfariza Ahmad Roslen, Nur Aizura Mat Alewi

Fruits have been acknowledged as a reservoir for numerous bioactive compounds. *Baccaurea angulata*, belonging to the Euphorbiaceae family, has been reported to contain several nutritional properties such as proteins and carbohydrates. Presently, *B. angulata* has not been fully exploited as little is known regarding its scientific properties. This preliminary study aims to explore the cytotoxicity effects of various extracts and fibers of *B. angulata* on human cancer cells. Cytotoxicity effects of *B. angulata* were evaluated on cervix cancer (HeLa) and skin melanoma (A375) cells through treatment with hexane, methanol and dichloromethane extracts of *B. angulata* as well as with novel *B. angulata* fibers (whole fruit and berries) via direct contact method. The growth inhibitions of the samples were evaluated through Methylene Blue Assay (MBA), with incubation time of 24, 48 and 72 hours. From the results, it was observed that for HeLa cells, berries showed the highest growth inhibition (90.69 µg/mL, 72 hours). The solvent-based extracts were found to be cytotoxic towards HeLa cells with methanol extracts exhibiting the highest cytotoxicity with EC50 of 17.21 µg/mL. For A375 cells, all extracts also exhibited cytotoxic effects, where the highest inhibition activity was induced by hexane extracts (89.40 µg/mL, 72 hours). Consequently, the study indicates that *B. angulata* fruit may have significant growth inhibitory and cytotoxicity effects toward HeLa and A375 cells. It can be presumed that *B. angulata* fruit has the potential to be used as a new alternative resource that could be fundamental in future endeavors for prospective therapeutic treatments for cancer.

FB32

Protective efficacy evaluation of a recombinant BCG and NPt-VP1(1-100) protein expressing the VP1 antigen of Enterovirus 71 in prime-boost immunization strategies

Mohd Azuan Mustapa, Rapeah Suppian & Zainul Fadziruddin Zainuddin

Introduction: Enterovirus 71 (EV71) is one of the causative agent for hand-foot and mouth disease (HFMD) which may cause severe neurological complications in young children below than five years old. To date, neither vaccine nor antiviral is available to control and prevent the infection. However, prime-boost immunization is a powerful strategy to generate long-lasting immune response and protective efficacy against various infections.

Objective: The objective of this study were to determine the immune response and protective efficacy induced by homologous and heterologous prime-boost immunization strategies using recombinant BCG (rBCGV1) and NPt-VP11-100 vaccines against EV71 infection.

Methods: Four groups of one day old ICR mice (n=19 per group) were immunized either with rBCGV1 or NPt-VP11-100 vaccines. On day 7, the mice were given a booster dose. For the homologous strategy, the mice were administered with a similar vaccine (rBCGV1-rBCGV1 or NPt-VP11-100-NPt-VP11-100) while for the heterologous strategy, the mice were administered with a different vaccine (rBCGV1-NPt-VP11-100 or NPt-VP11-100-rBCGV1). Two groups of mice (n=19 per group) were prime-boosted with BCG and NPfl as control. On day 14, the mice were challenged with 6.320×10^5 TCID₅₀ mouse-adapted EV71P5 virus and then were sacrificed for B cell, T cell and IHC on day 24.

Results: The results demonstrated that the mice prime-boosted with rBCGV1-NPt-VP11-100 showed the highest survival rate (71.4%) compared to other groups. Mice immunized heterologously with rBCGV1-NPt-VP11-100 also elicited higher levels of total IgG and IgG2a against VP1 antigen. However, all the mice did not produce neutralizing antibodies in their sera. The heterologous immunization with rBCGV1-NPt-VP11-100 also enhanced splenocyte proliferative response and produced higher levels of IFN- γ (the main cytokine produced by Th1) but lower levels of IL-4 (the main cytokine produced by Th2). In addition, the rBCGV1-NPt-VP11-100-immunized mice expressed less viral VP1 protein in their tissues compared to mice from other groups.

Conclusion: In conclusion, these results showed that the heterologous prime-boost immunization with rBCGV1-NPt-VP11-100 might be the best strategy for EV71 prevention in the future.

FB33

Establishment of isothermal helicase-dependent amplification coupled with lateral flow assay for detection of Salmonella Typhi in spiked stool samples

Faizul Rahman, S., Nor Amalina, Z., Asma, I. and Aziah, I.

Typhoid is a public health problem in many underdeveloped and developing countries but current diagnostic tests are insensitive especially for detection of typhoid carriers. Typhoid carriers show no clinical symptoms but have potential to cause outbreaks in communities. Stool culture is the gold standard for diagnosis of typhoid carriers but it is tedious and requires 3 – 5 days to identify the bacteria. Thus, helicase-dependent amplification (HDA) was developed to identify *staG* gene of *Salmonella Typhi* in faecal samples. The target gene was co-amplified together with competitive internal amplification control for one hour on heating block. The amplicons were then detected using lateral flow assay in 15 minutes. The detection limit of the assay was 97 pg/ μ L at genomic DNA level and 102 cfu/mL at bacterial level using DNA from spiked stool sample. The assay was validated with DNA from stool samples spiked with 25 different bacterial isolates of *S. Typhi* and 75 of non-*S. Typhi*. The result showed 100% sensitive and specific. This DNA-based assay has the potential to be used in laboratories with limited facilities because it is rapid, user-friendly and does not require special equipment for amplification and amplicons analysis (e.g., thermal cycler and gel electrophoresis apparatus).

FB34

A selective cultural medium for rapid isolation of *Candida* spp. from clinical samples

Almamary A & Garg A. Gautam R

Though, *Candida* infections are now being diagnosed by molecular techniques, yet still cultural methods (s) are more popular and replicable but they take 24-36h. We have developed selective cultural methods for rapid isolation of *Candida* spp. From clinical samples. The medium contains Glucose 20g, peptone 10g, Yeast extract 1g, Agar 15g, Bromocresol purple 20mg, chloramphenicol 50mg (all contents per liter in distilled water), pH 6.1 ± 0.1 . It was autoclaved at 15 psi for 15min and poured into sterile polystyrene petri plates when cooled but still molten. We collected 276 clinical samples of suspected candidiasis from patients' visiting the O.P.D at of L.L.R.M medical college, Meerut, and AIIMS, NEW DELHI. These were identified and characterized on the basis of microscopic examinations coupled with biochemical tests and were streaked onto above culture medium and incubated at 37°C. Change in color of the medium from purple to yellow was recorded after every 1h of interval. The results revealed that 85% (234) and 75 % (206) of total 276 samples were positive with microscopic examination and biochemical tests respectively, while the newly developed selective culture medium showed 270 positive samples for different species of *Candida* (98%) out of 276 by change of color of the medium from purple to yellow just within 2 to 4 h of incubation which indicated the presence of *Candida* sp. In the given sample (Table 1). Culture positive samples were further confirmed by microscopy and biochemical testes such as CHROM agar test, Rice meal agar test Germ tube test and carbohydrates fermentation test. Several mixed cultures of known pathogenic bacteria were also used along with different species of *Candida* and we found that the medium allowed the selective growth of tests *Candida* spp. Only (Figure1).It is suggested that medium may be used for the diagnosed of *Candida* infections by culture method, which can give the results within 2 to 4 h and has additional advantages of antifungal susceptibility testing facility that will have great clinical importance.

Effect of PKA phosphorylation on the catalytic properties of hCK β

Chang Ching Ching, See Too Wei Cun, Few Ling Ling

Introduction: Choline kinase (CK) serves as the first enzyme for biosynthesis of the major phospholipid component in eukaryotes. The regulation of this enzyme is physiologically important and alterations of its metabolism are linked to several clinical disorders. Previously, we showed that one of the CK isozyme, hCK β is phosphorylated by protein kinase A (PKA) on serine 39 and 40. Thus, the aim of our current study is to examine the effect of PKA phosphorylation on the catalytic activity of hCK β .

Objective: To examine the effects of PKA phosphorylation on the catalytic activity of hCK β .

Methods: In vitro phosphorylation of hCK β was performed and the catalytic activities of phosphorylated and non-phosphorylated hCK β were compared by using pyruvate kinase lactate dehydrogenase coupled system. The catalytic rate, k_{cat} and catalytic efficiency of the phosphorylated and non-phosphorylated hCK β were calculated and compared.

Results: PKA phosphorylation increased the catalytic activities of hCK β with choline, ethanolamine and ATP as substrates. The apparent V_{max} for choline, ethanolamine and ATP were increased by 47, 81 and 50.8%, respectively. Phosphorylation on hCK β improved the affinity for choline and ATP, but reduced the affinity for ethanolamine. Catalytic efficiency for choline and ATP were increased by 120.9% and 97.5% after PKA phosphorylation. However, the catalytic efficiency for ethanolamine was decreased by 22.5%.

Conclusion: PKA phosphorylation of hCK β improved its catalytic activity, affinity and efficiency for choline and ATP.

FB36

The comparability of cervical smear taken by self-sampling versus physician sampling

Fatma Hariati Mohamad Zaki, Nik Hazlina Nik Hussain, Wan Zahanim Wan Yusuf, Pazuddin Ismail, Nor Hayati Othman

Introduction: In Malaysia, the major problem with the cervical cancer screening is the non-optimal participation rate for Pap smear. Implementation of self-sampling method may increase the participation of women to screen for this cancer.

Objective: To investigate the agreement of cytological diagnosis of self-collected cervical smears versus clinician-collected cervical smears.

Methods: Women who volunteered to be included in the study were subjected to Pap smear sampling taken by clinicians [gold standard] and then instructed to do self-sampling cervical smear using Evalyn brush [test method]. All women were subjected to both screening methods. The method of self-sampling was taught using a short video demonstration. All slides were processed, screened, and interpreted. The cytology results of Pap smears from both methods were compared for agreement. The study was approved by Research Ethics Committee. Statistical analyses were conducted using IBM SPSS Statistics 20.

Results: A total of 131 women were recruited from May 2011 to December 2012, however only 120/131 (91.6%) completed all screening methods and available for analysis. There was good agreement between the adequacy of smear collected by clinician and self-sampling with the kappa statistic of 0.44 and p-value <0.001. There were 11 cases detected as epithelial cell abnormalities and 27 cases detected with infections from smears collected by self-sampling technique. A total of 49 smears (40.8%) collected by both techniques showed very similar smear results in terms of cellular volume and findings.

Conclusion: The results from this study provide convincing evidence that cervical smears taken by self-sampling give comparable results with smears taken by physicians. Self-sampling would be more receptive to women thus leading to better screening coverage. This method would be a way forward for Malaysia.

Tualang honey differentially affects 4-Hydroxytamoxifen induced activities in MCF7 and MCF10A cell lines

Nur Faezah Ismail, Nik Soriani Yaacob

Introduction: Several chemotherapeutic drugs including Tamoxifen (TAM) have been reported to cause side effects to non-cancerous cells. We have previously reported that the local Tualang honey (TH) promotes cell death induced by TAM in the breast cancer cell lines, MCF-7 and MDA-MB-231. But the influence of TH on TAM activity in non-cancerous epithelial cells has not been reported.

Objective: The aim of this study was to compare the effect of 4-hydroxytamoxifen (OHT) (an active metabolite of TAM), alone and in combination with TH on cell growth and DNA of the non-cancerous (MCF10A) and cancerous (MCF7) breast epithelial cells..

Methods: Both cell lines were treated with OHT and TH alone or in combination for up to 72 hours. Cytotoxicity was determined using lactate dehydrogenase assay and comet assay was performed to detect DNA damage activity within the cells after treatment. The expression of proteins involved in DNA repair was determined by Western blotting.

Results: OHT exposure was found to be toxic to both cell lines whereas TH was toxic to MCF7 cells only. Interestingly, the combination of OHT and TH significantly decreased the cytotoxic effect of OHT in MCF10A but not in MCF7 cells. A similar pattern was observed with regard to OHT-induced DNA damage in the two cell lines. The expression of DNA repair proteins was also differentially modulated by TH and OHT in both cell lines.

Conclusion: OHT was cytotoxic and genotoxic to both cancerous and non-cancerous cells and TH was able to reduce these effects in non-cancerous breast epithelial cells while enhancing the anticancer activity of OHT in the breast cancer cells.

FS1

Modified Meek Micrografting In Acute Burns: A 10-Years Experience

Kathleen YK Chang, TL Khoo, AA Dorai, AS Halim

Introduction: Early tangential excision and immediate skin grafting is the standard care in acute burns. The limited availability of donor site for skin autografting, especially in extensive burns, has hindered the effort for early burn wound closure. To effectively utilize the remaining skin autograft, modified Meek micrografting has emerged as the choice method for skin graft expansion technique.

Objective and Method: The modified Meek micrografting procedures in our centre from December 2002 till December 2012 were analyzed to validate the effectiveness of this technique in acute burns.

Results: There were 102 modified Meek micrografting procedures performed in 52 patients, 40 males and 12 females, with mean age of 15.0 ± 18.0 years. The patients sustained 32.2% of mean total body surface area of burn, mostly secondary to flame burn (59.6%). The mean number of procedure per patient was 1.96. The most commonly used expansion ratio was 1:3 and 1:4. Expansion of 1:6 was used in 4 patients who sustained more than 50% TBSA of burn. The mean graft take rate was $82.6 \pm 15.1\%$. The wounds completely healed at 58.9 ± 27.7 days. The mean length of hospital stay was 57.3 ± 26.9 days. There were 6 patients (11.5%) who succumbed to sepsis. There was no statistically significant difference in the outcome of graft expansion ratios 1:3 compared to ratio 1:4. However, there was statistically significant difference in the length of hospital stay ($p=0.017$) and duration of complete healing ($p=0.011$) in wound bed culture positive versus negative.

Conclusion: The modified Meek micrografting is an effective technique of skin graft expansion especially in major burns with limited donor sites.

FS2

Proliferation of human adipose-derived stem cells (ASCs) on three dimensional porous chitosan scaffold (PCS)

Mohaini M. & Halim AS

Introduction: Tissue engineering is a multidisciplinary area that combines cells, scaffold and signaling molecules. Stem cells are attractive sources for tissue engineering because of their self-renewal and multipotency. Adipose-derived stem cells, which are abundant and easy to harvest, have been utilized in tissue engineering. Chitosan is naturally derived biomaterials from shells of crustaceans. The porous structure of chitosan which is three dimensional would facilitate proliferation and migration of cells thus enhances regeneration of tissue. Their structure mimics glycosaminoglycan (GAG) present in extracellular matrix.

Objective: To investigate proliferation of ASCs within porous chitosan scaffold.

Methodology: Adipose derived stem cells were isolated by digestion in collagenase and expanded *in vitro* by incubating in Dulbecco's Modified Eagle Medium and 10% of Mesenchymal Stem Cells Fetal Bovine Serum. Cultured cells were characterized with mesenchymal stem cells and hematopoietic markers; CD73, CD90, CD105 and CD34 using flow cytometry. ASCs were seeded on porous chitosan scaffold and proliferation of ASCs within PCS was evaluated at day 1, 3, 5 and 7 using Alamar blue assay.

Result: Cells expressed more than 50% of mesenchymal stem cells markers except for CD34. There is significant difference of proliferation of ASCs within PCS by day as measured by Kruskal Wallis test ($p < 0.05$).

Conclusion: Porous chitosan scaffold can be used as scaffold in adipose-derived stem cells tissue engineering as they support proliferation of ASCs. Further modification of culture condition such as using bioreactors may enhance proliferation of ASCs within scaffold.

FS3

Growth and differentiation of human hair follicle stem cells on three-dimensional porous chitosan scaffold

Norhayati Mohd Noor, Chin Keong Lim, Zulkifli Mustafa, Zamzuri Idris, Saidi Jaafar, Kartini Noorsal. & Ahmad Sukari Halim

Introduction: Hair follicles repeatedly regress and reconstitute themselves, suggesting the presence of intrinsic tissue stem cells. Various studies on chitosan scaffold for skin tissue engineering have been reported. However, proliferation and differentiation of Hair Follicle Stem Cells (HFSCs) on porous chitosan scaffold has not been thoroughly investigated yet. Objectives: This study aims to investigate the proliferation and differentiation ability of HFSCs on a porous chitosan scaffold construct.

Methods: HFSCs were isolated from human scalp tissues using collagenase type-I prior to the culture in CnT-07 growth media. The HFSCs were verified using keratin-15 (K15) and CD200 markers. The cells were seeded on the porous chitosan and the attachment and proliferation patterns of HFSC at 72 hours were observed using a scanning electron microscope (SEM) and a live/dead cell assay. Induction of HFSCs into keratinocytes was performed using CnT-02 differentiation media before being further verified by their specific surface markers involucrin, Keratin-6 and Keratin-10. The induced cells were then viewed using a confocal laser scanning microscopy.

Results: HFSCs were successfully isolated and cultured in the CnT-07 growth media. The cultured HFSCs expressed K15 and CD200 markers, and have proliferated on the porous chitosan scaffold. HFSCs successfully differentiated into keratinocytes after being cultured for 72-hour as the involucrin, keratin-6 and keratin-10 markers were expressed in the culture.

Conclusion: Cultured HFSCs can be grown *in vitro* and have exerted multipotentiality towards epithelial lineage. The proliferation and differentiation potential of HFSCs in the porous chitosan scaffold may further provide insights for human skin tissue engineering in the future.

FS4

Impact of Sepsis Severity on In-hospital Survival of Septicaemic Patients, HUSM

Fairuz Fadzilah Rahim, Sarimah Abdullah, Norsa'adah Bachok & Siti Suraiya Md. Noor

Introduction: Septicaemia, a bloodstream infection is one of major concern in hospital-based setting worldwide as it associated with increase morbidity and mortality. **Objective:** To estimate the influence of sepsis severity on the 28-day in-hospital survival probability of septicaemic patients in Hospital Universiti Sains Malaysia (HUSM).

Methods: A retrospective record review of hospitalized septicaemic patients aged 18 years and older was conducted in HUSM from January to December 2011. Any cases of maternal sepsis, and suspected contamination were excluded. Patients' demographic and clinical characteristics, including sepsis event were collected and patients were followed until study endpoint of day-28. Event was identified as those who died caused by septicaemia during the study period. Data were analyzed using Kaplan-Meier survival analysis and log-rank statistics.

Results: Of 209 cases, 90 (43.1%) were females and 119 (57.0%) were males, with mean age of 55.1 (17.2) years old. Septicaemic deaths during follow up period were 38.8% with the overall median survival probability of 24 days (95% CI: 17, 27). Mortality was higher in elderly aged over 60 years old ($p = 0.006$), patients with more than two systemic inflammatory response syndrome (SIRS) criteria ($p = 0.014$), presence of multiple organ dysfunction syndromes ($p < 0.001$), renal failure ($p < 0.001$), endocrine disease ($p = 0.023$), and increasing severity of sepsis ($p < 0.001$).

Conclusion: Septicaemia is a continuum process where the severity affected by the various intrinsic and extrinsic factors, including age, underlying illness, and presence of organ failure. Future study on prognostic factors, as well as treatment implemented on septicaemic patients is recommended.

FS5

Evaluation of Blood Loss During Internal (Limb-Salvage) Hemipelvectomy for Pelvic Tumours: What Have We Learned So Far?

Mohd Ariff Sharifudin, Wan Mohd Faisham Wan Ismail, Zulmi Wan, Nor Azman Mat Zin, Nawaz Hussain Mohamed Amir, Mohamed Azril Mohamed Amin & Goh Kian Liang

Introduction: Pelvic tumour resections are complex and associated with extensive bleeding. Despite various blood management options in orthopaedic surgery, their used are limited particularly for pelvic tumour resections. Identifying predictive factors for a large amount of blood loss during surgery is essential.

Objective: To evaluate the volume of blood loss in limb salvage pelvic resections and identify the risk factors for large amount of perioperative blood loss.

Methodology: We retrospectively reviewed 25 patients underwent pelvic tumour resections performed between 2000 and 2010 in a single institution. Tumours originating from the sacrum were excluded. Total blood volume loss consisted of estimated intra-operative blood loss and the drainage volume on the first day after surgery. Loss of more than 3000ml of blood was classified as large amount of blood loss. Statistical analysis performed using Fisher's exact test.

Results: Six (24.0%) patients had total blood loss greater than 3000ml. Resections of primary bone sarcomas (osteosarcoma and chondrosarcoma) have the highest mean blood loss volume (6556.67ml and 1768.57ml, respectively). Most important factor associated with large amount of blood loss is the involvement of the acetabulum. Neo-adjuvant therapies and pre-operative embolization were not shown to be associated with extensive blood loss..

Conclusion: Resections of pelvic tumours involving the acetabular region are likely to have a large amount of blood loss perioperatively and should be anticipated. Radiation therapy prior to surgery was believed to increase the risk of bleeding intra-operatively, was not observed in this study.

FS6

Extraleisional Keloidectomy & Brachytherapy For Treatment Of Resistant Keloid

Kathleen YK Chang, AA Dorai, BM Biswa, AS Halim

Introduction: Keloid is an abnormal overgrowth of collagenous scar tissue at site of skin trauma or incision. Surgical resection alone results in recurrence in 50- 80% of the cases. Usage of adjuvant therapy including postoperative radiation, intralesional steroid injections, cryotherapy, laser excision and topical silicone has been employed to reduce recurrence rate.

Objective and Methods: Our centre employed a combination of extraleisional keloidectomy and high-dose-rate brachytherapy using Iridium-192 for the treatment of resistant keloid to prove the effectiveness of this treatment in resistant keloid. Four patients with recurrent keloid, which were resistant to intralesional steroid injections, at left scapular and left post-auricular regions, underwent extraleisional keloidectomy followed by Ir192 HDR-brachytherapy for 4 sessions at 6 hours interval, between December 2011 and May 2012. The keloid was completely excised and closed primarily in 2 layers (dermal and skin) using dafilon 4/0. Brachytherapy tubes were inserted prior to closure. The patients received 3.0 Gy of Ir192 for each session at 6 hours interval with a total dose of 12.0 Gy. The brachytherapy tubes were removed upon completion of brachytherapy. Sutures were removed at day 14. All patients were followed-up on a monthly basis.

Results: There were no post-operative complications in the form of wound breakdown or infection. Recurrence was noted in the patients between 3rd and 6th month post operation (less florid) compared to previous recurrence which occurred between 2-4 weeks post operation. The recurrence was controlled with intralesional steroid injection.

Conclusion: Usage of brachytherapy following surgical excision helped to delay and reduce exarcebation of recurrence in patients with resistant keloids.

FS7

Skin morphology and comparisons of the quality of RNA and protein extracted from fresh and stabilized human cleft lip and palate tissue

Nurul Syazana MS, Sarina S, Halim AS & Azman WS

Introduction: Orofacial clefts occur due to the failure of fusion of medial nasal prominence and maxillary prominence. This failure results in changes in tissue morphology. An isolation of human cleft lip and palate (CLP) tissue for genetic and proteomic study requires a lot of efforts in order to maintain the quality and purity of nucleic acids and proteins.

Objectives: To observe tissue morphology and to compare the quality of nucleic acids between fresh and stabilized CLP tissue.

Methods: Normal and CLP skin tissue were obtained from consented patients who underwent surgery in Hospital Universiti Sains Malaysia (HUSM). The tissues were processed, fixed with glutaraldehyde and image was captured using Scanning Electron Microscopy (SEM). Tissues were divided into fresh and stabilized tissues. Tissues were weighed at 30 mg and 100 mg. All tissues were homogenized and followed by RNA and protein extraction.

Results: Skin surface CLP tissue morphology of dermis and epidermis was visibly showed different features under SEM. Collagen fibers and blood vessels on the normal dermal was abundant compared to CLP skin. High and better yields of RNA were found from fresh tissue compared to the stabilized tissue. Neither fresh nor stabilized tissue samples affect protein concentration values.

Conclusion: Morphology of CLP dermal tissue was different from the normal tissue. Higher RNA concentration was obtained from fresh compared to the stabilized tissue extraction while protein concentration showed no drastic changes. Better image of epidermis and dermis can be obtained by orientating the tissue samples properly. RNA and protein will be used for further analysis using Western Blotting and Quantitative Real-Time PCR.

FS8

Predictive relationship between osteoarthritis, proprioception and movement coordination

Naresh Bhaskar Raj Saha, Soumendra, Saha Srilekha, Kaviarasu Mahalingam

Introduction: Osteoarthritis of the knee (a degenerative joint disorder) occurs commonly in middle aged and elderly patients, with a high prevalence rate amongst individuals with higher body-mass index. The Community Orientated Program for Control of Rheumatic Diseases (COPCORD) study reported that 9.3% of adult Malaysians complained of knee pain with a sharp increase in pain rate to 23% in those over 55 years of age and 39% in those over 65 years.

Objectives: This study purports to identify predictive relationship between life-style, body composition and prevalence of osteoarthritis in Malaysian elderly patients.

Methods: Form a pool of three-hundred twenty-five elderly individuals suffering from pain in knee, eighty individuals (fifty-three females and twenty-seven male patients) aging between fifty-six to sixty years were selected on the basis of Kellgren's criteria of deficit in proprioception. Thereafter all of the participants were subjected to assessment of body-composition analyses using anthropometric equipments and BOD-POD. Extent of proprioception was evaluated by the Isokinetic device and problems in gait and movement deficiencies were evaluated by the 3D motion tracking system. Further to that, the extent of difficulties associated with knee pain was also evaluated following WOMAC assessment protocol.

Results: Individuals having considerably lower body-weight but high extent of stiffness in knee were observed to have most difficulty in proprioception. Body-composition and lack of movement coordination were identified as significant predictor deficiency in proprioception and related knee osteoarthritis.

Conclusion: Predictive relationships between body-composition, movement coordination and proprioception related to osteoarthritis in knee have been identified.

FS9

Apoptotic effect of *Elephantopus scaber* extract on osteosarcoma cell line

Siti Nurnasihah Md Hashim, Siti Nabillah Mohamad Roslan, Nurul Azwa Mohd Saman, Nurul Hidayat Mohd Yusoff, Saaid Ayesh Alshehadat, Mohamad Ezany Yusoff, Thirumulu Ponnuraj Kannan & Ahmad Azlina

Introduction: *Elephantopus scaber*, known as Tutup Bumi in Malay is a herbal plant of Malaysia. It has been previously reported that *E. scaber* contains anti-carcinogenic and apoptosis inducing properties.

Objectives: To evaluate the inhibitory effect of *E. scaber* crude water-based extract on the osteosarcoma cells in vitro using MTT assay and to determine the expression level of bcl-2 apoptotic gene of the treated cells.

Methods: The cells were cultured in Dulbecco Modified Eagle's Medium supplemented with 15% of Fetal Bovine Serum and 1% of Penicillin/Streptomycin at 37°C in a 5% CO₂ humidified atmosphere. For MTT assay, a crude extract of *E. scaber* at concentrations of 100 and 200µg/mL were used for cell treatment. Treated cells were incubated and harvested at 0, 12, 24 and 36 hours. The cells were then subjected to the standard colorimetric MTT assay and the absorbance was read at 570nm. Graph was plotted and statistical analysis was conducted. RNA extraction and reverse transcriptase-PCR were carried out to determine the expression level of bcl-2 apoptotic gene of the treated cells.

Results: MTT results suggested that *E. scaber* crude extract exhibited significant inhibitory effect on proliferation of osteosarcoma cells in vitro (IC₅₀ 100µg/mL). Statistical analysis using Mann-Whitney test showed a significant difference in the cell numbers between samples incubated at 0 and 12 hours. The treated cells also showed expressions of bcl-2 gene but none in the untreated one.

Conclusion: *E. scaber* crude extract inhibits the growth of osteosarcoma cells by inducing apoptosis.

FS10

Microbiological aetiology of acute dacryocystitis Hospital Universiti Sains Malaysia , Kubang Kerian, Kelantan

Madhusudhan, Yanti Muslikan, Nabilah Ismail, Adil Hussein

Purpose: To determine the microbiological aetiology of acute dacryocystitis presented to the Hospital University Sains Malaysia, Kubang Kerian, Kelantan in 5 years duration from 2005 until 2010.

Methods: This is a retrospective analysis of patients who were clinically diagnosed as acute dacryocystitis from 2005 until 2010 to determine the regional microbiological pattern. The age, gender, predisposing factors, intravenous antibiotics and their microbiological results of discharge from punctal expression were collected. The laboratory procedures were in accordance with the Clinical and Laboratory Standards Institute guidelines.

Results: There were 23 patients admitted to the eye ward during study period. Females (n=17) outnumbered males (n=6). Mean age was 46.5 years ranging from 17 to 78 years of age. Duration of stay ranged from 3 days to 8 days but mean stay was 5.4 days. Majority showed growth (n=16), Streptococcus(n=5), Staphylococcus(n=5), Enterobacter (n=2), normal skin flora (n=1), mixed growth (n=2) and no microbiological data was found on 2 cases. Majority of isolates were Gram-positive bacteria (n= 10, 43.4%) followed by Gram-negative isolates (n=2, 12.9%). The most predominant isolates were Streptococcus pneumonia (21.7%) followed by Staphylococcus epidermidis (13.0%). Patients were treated with cloxacillin (n=12) in which 2 of them were combined with other antibiotics, ciprofloxacin (n=6) and amoxicillin-clavulanic acid (n=5).

Conclusion: *Streptococcus pneumoniae* was the commonest gram positive organism identified in our study. 47.8% patients showed resistant to initial empirical treatment.

FS11

Pro-inflammatory cytokine IL-1 β secreted by macrophages promotes lymphatic vessel invasion in breast cancer and melanoma

Sabreena Safuan, Sarah J.Storr, Mohamed El Refaee, Andrew M. Jackson, Poulam M.Patel, Stewart G.Martin

Background and aims: The initial metastatic process involved the migration, adhesion and transmigration of cancer cells across blood/lymphatic endothelial cells (EC) before entering circulations. This study aims to model the initial metastatic steps by comparing adhesion and transmigration pattern of breast cancer and melanoma to blood and lymphatic cell models. The stimulatory effect of macrophage associated cytokine IL-1 β , and macrophage conditioned media (MCM) on tumour cell adhesion and transmigration across EC models was also investigated.

Methods: Breast cancer (MDA-MB-231 and MCF7) and melanoma (MeWo and SKMEL-30) cell adhesion to lymphatic (hTERT-LEC and HMVEC dLy Neo) and blood (HUVEC and hMEC-1) ECs was assessed using static adhesion assays and Boyden chamber transmigration assays. The effect of inflammatory conditions; interleukin 1 beta (IL-1 β) and MCM stimulation of endothelial and tumour cells, on the adhesion and transmigration processes were also examined.

Results: Stimulation of endothelial and tumour cells alone with IL-1 β and MCM showed a significant increase in the percentage of tumour cells adhering to the EC monolayer, which was notably higher in the lymphatic endothelial cells ($p < 0.001$). Increased tumour cell adhesion to lymphatic endothelial cells following stimulation with MCM seemed to be associated with the amount of IL-1 β presents. When IL-1 β converting enzyme (ICE) inhibitor was included in the macrophage conditioned media, the increase in tumour cell adhesion to EC monolayer was reduced

Conclusion: Tumour cell adhesion and transmigration across lymphatic and blood endothelium can be modulated by cytokine stimulation. Pro-inflammatory cytokines, such as IL-1 β and those produced by macrophage may play an important role in vascular invasion, which has important clinical consequences.

FS12

Comparison of starting tumor size for initiating tamoxifen treatment on *NMU*-induced rat mammary tumors

Muhammad, H., ³Shaari, R., Sh. Emilia TS., Yaacob, NS

Introduction: Tumor size is an established independent prognostic factor in the management of breast cancer. Interestingly it is easy to fix a starting tumor size on experimental mammary tumors before initiation of treatment unlike in human subjects. Yet literature reports were inconsistent on this subject due to variation in the methodologies adopted.

Objective: To compare the end-tumor response between the rats treated with Tamoxifen at starting tumor sizes of 10 mm and at 15 mm.

Methodology: N-methyl-N-nitrosourea (NMU)-induced female Sprague Dawley rats bearing 10 or 15 mm tumor nodules were randomized and treated orally with Tamoxifen 100 µg for 8 weeks. Treatment response was assessed weekly using animals' body weight and tumor growth variables. Animals were sacrificed after 8 weeks of treatment, blood samples were taken by cardiac puncture, and serum was collected for assessment of biochemical profile. All palpable tumors were excised, weighed, and representative sections were processed for histopathological (H&E) assessment. Data were expressed as median and ranges (IQR) or mean (SD) and analyzed using SPSS Version 20.

Results: Animals treated at 10 mm tumor size show better prognosis in overall tumor growth variables compared to those treated at 15 mm. There was moderate elevation of serum alkaline phosphatase and liver enzymes, and significant hypokalaemia was noted in 15 mm-treated animals compared to those treated at 10 mm. Histological analyses show moderate foci of necrosis and histological features consistent with grade 2 invasive carcinoma in both 10 mm and 15 mm treated animals.

Conclusion: Our data suggest that standardization of tumor size prior to initiation of treatment with potential anticancer agents is important for direct comparison of end-tumor responses.

FS13

Comparison of wound healing rates of wounds treated with cultured epithelial autografts, allografts and xenografts with the use of a silicone barrier device in a rabbit model

Jagjeet Singh & Ananda Dorai

Introduction: The gold standard of permanent wound closure has been the use of autologous skin grafts. Patients with massive burns have limited availability of donor sites for autologous skin harvest. Cultured epithelial grafts can provide permanent skin coverage in wounds with no other intrinsic sources of keratinocytes and can stimulate wound healing and re-epithelialization from the edges. Serial cultivation of epidermal keratinocytes also leads to loss of its antigenicity.

Objective: To compare the healing rates of different full thickness wounds treated with cultured epithelial autograft, allografts and xenografts.

Materials and methods: 10 rabbits were used for this study. Full thickness wounds on each rabbit were treated with cultured epithelial autograft, allograft and xenografts and were compared their healing rate. Epithelialization rate was calculated for each wound and compared to each other. Each wound was prevented from contracting by the use of a silicone barrier device that was designed as part of the study methodology.

Results: The silicone barrier device was well tolerated by all the rabbits. Similar epithelialization rate was observed between the wounds treated with the cultured epithelial autograft, allograft and xenografts.

Conclusion: Serial culturing of the epithelial grafts reduced to antigenicity of the cultured epithelial allograft and xenografts to the point where all the treated wounds healed with similar rate.

FS14

Evaluation of protein gene product 9.5 expression in resected bowel specimen of an adult patient with Hirschsprung's disease and concurrent intestinal neuronal dysplasia: possibility of utilisation in diagnostic practice

Effat Omar, Muhammad Naquib Mokhzir, Nurul Aishah Mohamad, Noor Afidah Mohamed Shabery

Introduction: Intestinal neuronal dysplasia (IND) is a controversial entity, with similar presentation as Hirschsprung's disease (HD). Approximately 25-35% of patients with HD have been reported to have concurrent IND. Recent animal studies have attested IND as a distinct entity. However IND is still poorly defined histologically and is even poorer recognised, leading to delay in diagnosis. Protein gene product (PGP 9.5) is a neuron specific protein, reported to play a role in the pathogenesis of HD.

Objective: to study the expression of PGP 9.5 in the resected bowel segment of a concurrent HD and IND patient.

Methods: paraffin embedded blocks of the resected rectosigmoid were subjected to immunohistochemistry staining for PGP 9.5. The stained slides were then photographed and analysed by image analysis software. Percentage staining within the myenteric plexus and circular muscular was calculated. Statistical analysis was performed using SPSS 16.0.

Results: The patient was a 30 year old Chinese man with a history of constipation since childhood. Previous investigations rectal biopsies showed presence of ganglion cells. He had acute intestinal obstruction and underwent emergency laparotomy; a length of bowel was removed. Sections from the resected specimen showed a short segment of aganglionosis at the distal margin. The rest of the bowel showed presence of ganglion cells with alternating areas of morphological hyper and hypoganglionosis. Immunohistochemistry showed reduced expression of pGP 9.5 within the aganglionic area, while increased expression in hyperganglionic areas; $p < 0.05$.

Conclusion: Short segment HD with concurrent IND may result in prolonged suffering in the patient as the disease may be difficult to diagnose. Increase awareness of this condition is needed. PGP9.5 staining is potentially useful in detecting IND in HD.

FS15

Overexpression of DNA methyltransferase 1 (DNMT1) protein in astrocytic tumour and its correlation with O6-methylguanine-DNA methyltransferase (MGMT) expression

Shakir K.A.R, Wan Faiziah W.A.R, Norzaliana Z, , Hasnan J

Background: Global hypomethylation and focal specific hypermethylation is one of the key of complex carcinogenesis in astrocytic tumour. Methylation process was regulated by DNA methyltransferase (DNMT). Moreover, epigenetic silencing of tumour suppressor genes was found in glioma including O6-methylguanine-DNA methyltransferase (MGMT) gene. Thus, we investigated the correlation between DNA methyltransferase 1 (DNMT1) and MGMT immunoeexpression in astrocytic tumour. The differential protein expression and the potential clinico-pathological association were also explored.

Methodology: We conducted a cross sectional study using 71 samples of archived formalin-fixed paraffin embedded tissue blocks of astrocytic tumours diagnosed in Hospital Universiti Sains Malaysia (HUSM) from January 1997 until May 2012 and stained them with anti-DNMT1 and anti-MGMT antibodies using immunohistochemistry method

Result: DNMT1 overexpression and MGMT reduced expression in astrocytic tumour were 74.5% and 81.7%, respectively. The mean percentages for DNMT1 expression were increasing in trend from WHO grade I (GI) to WHO grade IV (GIV) [GI: 18.53 ± 23.75 , GII: 23.12 ± 25.80 , GIII: 27.45 ± 14.45 and GIV: 42.22 ± 22.49] with only mean for GIII and GIV showed statistical difference [GIII/GIV: p value=0.042]. Similar pattern was also seen in mean H score for DNMT1 [23.56 ± 37.47 , 36.17 ± 54.75 , 47.19 ± 33.34 and 78.20 ± 51.05]. However, the mean H score for MGMT expression from GI to GIV were reducing trend [28.36 ± 43.88 , 28.08 ± 33.67 , 26.00 ± 48.70 and 16.20 ± 35.61] with the biggest difference was at GIII/GIV. Furthermore, the significant associations between DNMT1 protein expression with GIV and GIII were also seen in multiple regression analysis [GIV: OR=40.663; 95% CI=4.069, 406.347; p value=0.002 and GIII: OR=5.802; 95% CI: 1.059, 31.785; p value=0.043]. A good negative correlation between DNMT1 and MGMT in high grade tumour [Spearman correlation test: $r=-0.561$, p value= <0.001 in percentage expression and $r=-0.576$, p value= <0.001 in H score] but poor correlation in low grade tumour [Spearman correlation test: $r=-0.059$, p value=0.758 in percentage expression and $r=-0.009$, p value=0.962 in H score].

Conclusion: DNMT1 was aberrantly expressed in glioblastoma (GIV) and/or GIII anaplastic astrocytoma and partly involved in MGMT expression regulation. We postulated that it also involved in MGMT promoter hypermethylation in glioblastoma and/or GIII anaplastic astrocytoma.

FS16

The survival of nasopharyngeal carcinoma patients treated in Hospital Universiti Sains Malaysia

Siti Azrin Ab Hamid, Norsa'adah Bachok, Syed Hatim Noor

Background: Nasopharyngeal carcinoma is the fourth most common cancer in Malaysian and third most common cancer among males in Malaysia. Different studies reported different prognostic factors that influence the survival of nasopharyngeal carcinoma patients.

Objective: To determine the survival time based on prognostic factors in nasopharyngeal carcinoma patient.

Methods: Hundred and fifty two nasopharyngeal carcinoma cases confirmed via histopathology in Hospital Universiti Sains Malaysia between 1st January 1998 and 30th December 2007 were retrospectively reviewed. Survival time of nasopharyngeal carcinoma cases were estimated by the Kaplan-Meier survival analysis. Log-rank test was performed to compare survival of cases among presenting symptoms, WHO type, TNM classification and treatment modalities.

Results: Overall median survival time was 30 months (95% CI: 22.52, 72.49). There were significant longer median survival time in those without neck swelling ($p = 0.041$), cranial nerve palsies ($p = 0.009$) and metastases ($p = 0.006$). Patients with N0 had median survival time of 71 months (95% CI: 23.78, 119.16), higher compared with other N-classification. There were significant differences of survival time between N1-N3 ($p = 0.013$), stage II-IV ($p = 0.009$), stage III-IV ($p = 0.024$) and different treatment modalities. The median survival time were longer for those who received and completed radiotherapy with $p < 0.001$ and $p = 0.023$.

Conclusion: The median survivals of nasopharyngeal carcinoma patients were influenced by severity of symptoms, TNM classification and different treatment modalities.

FS17

Prognostic factors and survival of patients after underwent Coronary Artery Bypass Grafting in Hospital Universiti Sains Malaysia(HUSM)

Siti Nurul Farahiah Mohamed Noor

Introduction: The study on survival rate and prognostic factors may be useful for monitoring and improving the survival rate of the patients undergoing coronary artery bypass grafting (CABG). Difference in demographic, culture and belief may give different results in survival for Malaysian compared to other countries.

Objectives: The objectives of this study were to determine the five-year survival rate of patients who underwent Coronary Artery Bypass Grafting (CABG) at Hospital Universiti Sains Malaysia (HUSM) and to identify the prognostic factors that influence the risk of death.

Methods: A retrospective record review study was conducted involving 139 patients who underwent Coronary Artery Bypass Grafting (CABG) at Hospital USM, Kelantan from January 2006 until December 2011. All patients who fulfilled the criteria were included in the study.

Results: Overall five-year survival rate of patients who underwent CABG were 86.4%. After adjusting for other variables, the significant prognostic factors that influenced death were female (4.8, 95% CI: 1.39, 16.39, p value=0.013) and ejection fraction less than or equal 50% (adjusted HR adjusted HR 14.4., 95% CI: 4.59, 45.23, p value <0.001).

Conclusion: The five-year survival rate for patients who underwent CABG in this study was high. The prognostics factors identified were similar with other studies findings. However, other important prognostic factors such as age, gender, diabetes mellitus obesity, hypertension, hyperlipidemia and number of vessels were not identified as prognostic factors in this study after adjusting other variables.

Sociodemographic Characteristics Of Patients Underwent Oberlin Procedure In Hospital Universiti Sains Malaysia, Kelantan

Ahmad Zubair AA & Mohamad P

Introduction: Upper Brachial Plexus injury is a common injury after a motor vehicle accident in Malaysia. Oberlin procedure is an operation to transfer a few fascicles from the intact and functioning ulnar nerve to the biceps branch of musculocutaneous nerve for the purpose of elbow flexion.

Objective: This study was done to determine the sociodemographic characteristics of the patients underwent Oberlin procedure in Hospital Universiti Sains Malaysia, Kelantan and to determine the functional morbidity on the ulnar nerve before an Oberlin procedure as assessed by motor strength and sensation.

Methods: A prospective study involving 12 patients was done from December 2011 to June 2012 by assessing the ulnar nerve function via measuring the grip strength, pinch strength and two point discriminations pre-operatively and one day after the operation.

Results: All of the 12 patients undergoing Oberlin procedure are male, sustaining the injury after a motorvehicle accident, are right handed and majority without comorbidities. Half of them are students and eight of them smokers. Pure C5C6 injury is seen in eight patients and combined C5C6C7 injury is seen in the remaining four patients. Seven patients had the injury on right side and five on the left. The interval from injury to operation in majority of the patients is five months. The mean grip strength preoperatively was 9.19 kgf(5.33), while the mean pinch strength pre operatively was 3.10 kgf (1.04). The mean for two point discrimination pre operatively was 4.08 mm (1.18). For post operative findings, the mean grip strength at day one post operation 5.19 kgf(5.56), while for pinch strength and two point discrimination, the mean was 1.97 kgf(1.55) and 4.64 mm (1.25) respectively.

Conclusion: This study demonstrated that there was initial deterioration on the ulnar nerve function immediately after operation.

FS19

Distribution and Characteristics of Lymphatic and Blood Vessels in Melanoma

Sabreena Safuan, Sarah J.Storr & Stewart G.Martin

Introduction: Vascular invasion (VI) is an important step in the metastatic cascade. Unlike blood vessels, less is known about the role of lymphatic vessels in cancer progression.

Objective: This study aims to investigate the incidence of lymphatic vessel invasion (LVI), lymphatic vessel density (LVD), blood vessel invasion (BVI) and blood vessel density (BVD) as prognostic biomarker in cutaneous melanoma and the association of these characteristics with clinicopathologic variables and clinical outcome.

Methods: 202 primary cutaneous melanoma samples (38 months follow-up) were used. D240, CD34 and CD68 were used to stain lymphatic vessels, blood vessels and macrophages respectively. To assess LVD, positive vessels were counted in the intra- and peri-tumoural area which was normalised to the tumour surface area. BVD and macrophages were counted using Chalkley method in three hotspots with the average value used for analysis. LVI and BVI were determined as the presence of tumour cells within D2-40 stained vessels and CD34 positive/D240 negative vessels respectively. All characteristics of lymphatic and blood vessels were correlated with clinicopathological variables and clinical outcome. VI frequency assessed by IHC was also compared with H&E.

Results: Using IHC, VI was detected in 29.9% of cases (55/184) compared to 8.0% (16/199) by H&E. Of the VI detected by IHC, 85.5% (47/55) was LVI opposed to 9.1% (5/55) BVI. LVI was significantly associated with tumour stage, Breslow thickness, Clarks level, ulceration and mitotic rate ($p<0.001$). No associations were observed between relapse-free or overall survival with any characteristics of lymphatic and blood vessels assessed. High macrophage counts were significantly associated with Breslow thickness, ulceration, mitotic rate, high BVD and LVI ($p<0.001$, $p<0.001$, $p=0.005$, $p=0.003$, $p=0.002$ respectively).

Conclusion: VI in melanoma is essentially LVI and conventional assessment of VI with H&E underestimates its incidence which is significantly improved by IHC. The association of LVI with markers of aggressive disease suggests their importance in melanoma. A high macrophage count associated with LVI suggests a role for macrophage and/or their associated factors in mediating the process of metastatic spread via lymphatic vessels.

FS20

Association of systemic diseases with severity of primary angle closure glaucoma

JB Chan, EL Tan, YL Neoh, PY Ong & AT Liza-Sharmini

Introduction: Primary angle closure glaucoma (PACG) is known to be responsible for more blindness than primary open angle glaucoma (POAG) in Asians. The presence of systemic diseases that may affect the blood supply to the optic nerve may be associated with the severity of PACG.

Objective: To determine the association between some common systemic diseases with severity of PACG

Methods: A cross-sectional study was conducted from April to July 2012 involving PACG patients attending eye clinic in Hospital University Sains Malaysia and Selayang Hospital. Systemic disease such as diabetes, hypertension, hyperlipidemia, cardiovascular disease and cerebrovascular accident were retrieved from medical record or by direct questioning. The staging of severity of glaucoma was based on Humphrey Visual Field analysis by Hodapp Parrish and Anderson's classification. Predictive Analytic Software (PASW) 20 was used for statistical analysis.

Results: A total of 123 PACG were recruited with majority has no history of acute attack (66%). Hodapp-Parish-Anderson's classification was conducted on 118 patients. 60% already had severe defect, 13% moderate and 27% early defect. Hypertension is the commonest systemic comorbidity. Hyperlipidemia patients are less likely to develop symptomatic angle closure ($p= 0.018$). There was significant association between diabetes mellitus and PACG ($p=0.041$). Those with diabetes mellitus tend to be diagnosed earlier.

Conclusion: Hypertension, hyperlipidemia and diabetes are common systemic diseases presented in PACG. PACG patients with diabetes mellitus and multiple comorbids are detected at the earlier course of PACG.

FS21

Association Of Systemic And Environmental Risk Factors In Retinopathy Of Prematurity Among Malay Population

Abdul Salim Ismail, Zunaina Embong, Abdul Aziz Yusoff, Shatriah Ismail, Noraida Ramli & Mohd Ismail Ibrahim

Introduction: Retinopathy of Prematurity (ROP) is a multifactorial disease and associated with various systemic (short gestational period and low birth weight) and environmental (high oxygen exposure and prolonged duration of mechanical ventilation) risk factors.

Objective: To evaluate the association of extreme prematurity (≤ 28 weeks), extreme low birth weight (≤ 1000 g), high oxygen exposure ($SpaO_2 \geq 95\% > 40\%$ daily percentage time) and prolonged duration of ventilation (> 3 days) in ROP among the Malay population.

Methods: A total of 56 Malay premature patients (ROP = 28 patients, non ROP = 28 patients) were recruited in this study. The systemic and environmental risk factors were documented.

Results: The mean gestational age was 28 weeks (ROP) vs 30 weeks (non ROP) ($p=0.01$), the mean birth weight was 986 g (ROP) vs 1476 g (non ROP) ($P < 0.01$) and the mean duration of ventilation was 12.3 days (ROP) vs 4.3 days (non ROP) ($P= 0.136$). Extreme prematurity (≤ 28 weeks) and prolonged duration of ventilation (> 3 days) were significantly associated with ROP ($P=0.03$ and $P\leq 0.01$ respectively). Prolonged duration of ventilation (> 3 days) was the only independent risk factor associated with ROP (OR 9.711, 95% CI: 2.780-33.920).

Conclusion: Extreme prematurity and prolonged duration of ventilation were the systemic and environmental risk factors significantly associated with ROP. However, further large cohort, multi-centre studies will be useful to clarify these associations.

FS22

Intravenous ketamine as an adjuvant to intrathecal bupivacaine and fentanyl for post operative caesarean analgesia

Shahida Ismail & Gnandev Phutane

Introduction: Pain relief of good quality after caesarean section results in early mobilization and good early mother-child interaction. The visceral component of pain after delivery can be controlled with NSAIDS; however, the effect was not sustained for about 24 hours. There has been interest in the use of ketamine in subanaesthetic dose (0.1-0.5mg/kg) as an adjuvant for postoperative analgesia.

Objective: To study effectiveness of intravenous ketamine 0.5mg/kg administered after delivery of the fetus during spinal anaesthesia with bupivacaine, and fentanyl for caesarean section, in addition to diclofenac sodium in relieving postoperative pain for about 24 hours.

Methods: Prospective double blinded randomized study done on 72 patients undergoing elective or emergency caesarean section was divided into ketamine and saline group. Caesarean section was done under spinal anaesthesia using 0.5% hyperbaric bupivacaine and 15mcg fentanyl under standard monitoring. Immediately after delivery of the fetus, intravenous ketamine 0.5mg/kg diluted in 20mls saline was given as infusion in one group, only 20 mls normal saline in the other group until the end of surgery. Postoperatively apart from routine monitoring, pain (VAS) score at 4, 12 and 24 hours, incidence of breakthrough pain and time for first rescue analgesia data were recorded and analysed accordingly.

Results: There was significant reduction of pain score at 4 hours and 12 hours in ketamine group than in normal saline group (p value = 0.001 at 4 hours, p value = 0.002 at 12 hours). The normal saline group had higher incidence of breakthrough pain (p value = 0.001). The time of first rescue analgesia between the two groups were statistically significant (p value = 0.0061)

Conclusion: Low dose intravenous ketamine given immediately after delivery of the fetus, as an adjuvant reduces the pain score significantly.

Ketamine has a role in the multimodal approach of good post caesarean analgesia.

FS23

The effects of (940nm) Low Level Laser Therapy on bone remodelling during orthodontic tooth movement

Mohammed Mahmood Jawad, Adam Husein, Mohammad Khursheed Alam, Rozita Hassan, Rumaizi Shaari, Ahmad Azlina

Objective: Low level laser therapy (LLLT) has many anabolic effects such as the acceleration of bone formation. However, its effects on orthodontic tooth movement, performed by bone resorption and formation, have not been well characterized.

Methods: Twenty male, 6-week-old Sprague Dawley rats were used in the experiment. A total force of 10g was applied to the rat molars to induce tooth movement. A (940nm) diode laser with powers of 100, 200 and 300mW were used to irradiate the area around the moving tooth once a day for 7 days, and then the rats were sacrificed. To determine the amount of tooth movement, plaster models of the maxillae were made using a silicone impression material before (day 0) and after tooth movement at (day 7). The models were imaged and analysed using JVC Image Analyzer with Material Workstation analysis software. Histological examination was performed after staining with (haematoxylin and eosin) stain, also by staining with (Alizarin red and Alcian blue) special staining. RT-PCR was also performed to elucidate the gene expression of RANK, RANKL, OPG and RUNX-2 in the area of orthodontic tooth movement with or without LLLT irradiation.

Results: In the laser irradiated groups the amount of tooth movement was significantly greater than that in the non irradiated group at the end of the experiment. Although among the laser groups, the 100mW power laser group was the highest and the 300mW power laser group was the lowest regarding amount of tooth movement. Histologically, there was no significant difference between the (100mW and 200mW) laser groups and the control group, while the 300mW laser showed massive destruction and damage to the bone. For RT-PCR, there was an over gene expression of the (100mW and 200mW) laser groups in comparison with the control group. Also the 100mW laser group showed an over gene expression among all treatment groups while the 300mW laser group showed under gene expression among all treatment groups.

Conclusion: These findings suggest that low energy laser therapy may facilitate the velocity of tooth movement and improve the quality of bone remodelling during orthodontic tooth movement

POSTER PRESENTATION ABSTRACTS

PM1

A Comparison Of The Hand Hygiene Knowledge, Beliefs And Practices Of Degree Nursing And Medical Students At Hospital Universiti Sains Malaysia

Jayah K. Pubalan & Nur Afiqah Masinau

Background: Knowledge, beliefs and practices toward hand hygiene is essential in order to enhance the prevention or reduction of health care associated infections. **Methods:** The objective of this descriptive cross-sectional study was to compare the level of hand hygiene knowledge, beliefs and practices among degree nursing and medical students in HUSM. Knowledge on hand hygiene was evaluated in 69 nursing students and 166 medical students. Participants were selected using simple random sampling method. Data were obtained by using Hand Hygiene Questionnaire (van de Mortel et al.) which consisted of a five-point Likert scale and multiple choice self-administered questionnaires. **Results:** The data were processed with SPSS version 19.0 to analyze descriptive statistics, Independent-t test and Analysis of Variance (ANOVA). Results obtained showed there was no significant difference ($p = 0.235$) in the level of hand hygiene knowledge among these two groups. Independent t-test and ANOVA test was used to describe the association between socio-demographic characteristics with KSCORE, HBS and HHPI. There was no significant difference between gender and KSCORE ($p = 0.276$), HBS ($p = 0.327$) and HHPI ($p = 0.14$). However gender of participants had a significant relationship with year of their study ($p < 0.05$). **Conclusion:** The findings of this study revealed that knowledge in HH was not the only factor that can lead to HH adherence in clinical areas. Hence this study provides a guideline for healthcare providers to improve hand hygiene knowledge and practice among health care students by ensuring future educational and behavioral interventions programs.

PM2

Case Report : Refractory Cytopenia Of Childhood (RCC) Presenting As Idiopathic Thrombocytopaenic Purpura (ITP)

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Childhood MDS is a rare clonal disorder ,recognized in the World Health Organization (WHO) classification as refractory cytopenia of childhood (RCC), which is characterized by persistent cytopenias and fewer than 5% blasts in a usually hypocellular marrow. We report a case of RCC in an 6-year-old malay male initially diagnosed as ITP in August 2012 in HRPZII when he presented with epistaxis and bruises after a fall and noted to have thrombocytopenia (platelet count of $30 \times 10^9/L$). He was referred to HUSM 2 months later when he presented with fever for 3 weeks associated with abdominal pain, epistaxis, gum bleeding, and lethargy with progressive anemia and thrombocytopenia. On clinical examination, he had marked pallor with hepatosplenomegaly. The hematological findings revealed bicytopenia. Bone marrow (BM) aspirates and biopsy showed hypercellular marrow with erythroid and granulocytic dysplasia. Erythroid series showed multinuclearity, nuclear budding, micronormoblast, basophilic stippling and inter nuclear bridging while granulopoiesis showed Pseudo-Pelger-Huët anomaly, hypogranularity and giant metamyelocytes. Myeloblasts formed 1-2% of non-erythroid cells. Dysmegakaryopoiesis and micromegakaryocytes were prominent in marrow biopsy. Cytogetic study was reported as normal . Other tests including serum B12 and folate were normal. Based on the above findings, a diagnosis of RCC was made. Childhood MDS is different from adult MDS. A variety of hematological and non-hematological disorders such as aplastic anemia, ITP, PNH, viral infections, nutritional deficiencies and metabolic disorders can give rise to secondary MDS in children, thereby mimicking RCC. Therefore the present case throws light upon the diagnostic dilemmas associated with childhood MDS as well as emphasised on the need for intensive work-up required in such condition.

PM3

Comparative Study Of Professionalism Of Future Medical Professionals In Three Private Medical Colleges Of Bangladesh

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Ahmed G. Alattraqchi, U.S. Mahadeva Rao

Introduction: Medical professionalism forms the basis of the bond between doctors and society. **Objectives:** This study is aimed to examine and compare the professionalism of future medical professionals of private medical colleges in Bangladesh. **Methods:** It was a cross-sectional study conducted on 332 year-III (169) and year-IV (163) MBBS students of session 2012-2013 selected randomly from Eastern, Central and AK-Modern Medical Colleges in Bangladesh. Among the sample, 133, 93 and 106 were from Eastern, Central and Modern medical colleges respectively. Data was collected using a validated instrument which contained nine core elements of professionalism measured by 5-points Likert scale giving a maximum score of 200 with four open-ended questions. The data was then compiled and analyzed using SPSS version-20. **Results:** The response rate of this study was 95.29%. Year-III sample was 95% while year-IV was 96%. 44% percent (147) respondents were male and 56% (185) were female. Mean professionalism scores for year-III was 174.96 and year-IV was 176.50. Mean professionalism scores for male was 176.21 and female was 175.33. No significant differences observed between gender ($P=0.386$) and year of study ($P=0.127$). Significant differences were observed ($p=0.02$) between year-IV male students among three medical colleges. Significant differences between genders ($p=0.03$) in Central Medical College also noticed. However, 83% students were imprecise of professionalism. **Conclusion:** Insignificant differences of professionalism found between genders and study-years. However, majority of respondents were imprecise on professionalism. Educators should focus on fundamental elements of professionalism. Continued research is recommended to produce safe, competent and confident medical practitioners

PM4

Prevalence Of Nocturia And Its Effect On Sleep Quality And Quality Of Life Among Hospitalized Geriatric Patients In Medical-Surgical Wards In Hospital Universiti Sains Malaysia (Husm), Kubang Kerian, Kelantan

Rahimah Mohd Anshari and Nazilatul Hidayah Jusoh

Introduction: Nocturia is a simple notion of urinating during the night with two or more voiding episode per night and is considered as a norm in elderly life. **Objectives:** To determine the prevalence of nocturia and its effect on sleep quality and on quality of life among hospitalized geriatric patients in Medical-Surgical Ward, Hospital Universiti Sains Malaysia (HUSM). **Methods:** A total of 40 respondents were involved in this study. A cross-sectional survey with modified questionnaire was used and data was analyzed using SPSS version 18 with descriptive analysis, chi-square test and Spearman's correlation test applied. Ethical approval obtained prior to data collection. Duration of data collection is December 2011 to February 2012. **Results:** Respondents aged >75 years was 30% (n=12) and 23 (57.5%) were female. Malay respondents comprised of 87.5% (n=35) while 12.5% (n=5) were Chinese. Married respondents were 57.5% (n=23) and 37.5% (n=15) have multiple diseases such as renal problem, hypertension and diabetes mellitus. Complaint of sleep interruption due to the urge to urinate was 92.5% and 50% of them complaint of bothersome. There was a positive correlation between nocturia and sleep quality, which was statistically significant ($r = 0.578$, $p = 0.000$). For the effect of nocturia on quality of life, Spearman's correlation shows ($r = 0.291$ with $p < \alpha$ ($\alpha = 0.05$) and p value obtained is 0.068. **Conclusion:** Quality of life is affected by nocturia because it disturbed sleep quality. Poor sleep quality with higher bothersome rate and increased frequency of voiding per night shows some impairment towards quality of life.

PM5

Divorce And Other Factors Associated With Domestic Violence Among Malay Wives In Kota Bharu Kelantan

Nik Normanieza Binti Nik Man

Domestic violence is defined as violent behavior in an intimate relationship that causes physical, sexual, or psychological harm. It is a major social and health problem worldwide. Divorce is one possible escape route for women caught in a chronic domestic violence situation. The objective of this cross-sectional study was to determine the association of divorce and other factors with domestic violence. The study was conducted among 677 wives who attended community health clinics and health clinics in the district of Kota Bharu, Kelantan, using self administered validated questionnaire. Statistical analyses: simple and multiple logistic regressions were performed using SPSS version 19. Multiple logistic regression revealed that the risk of having domestic violence 14 times higher among divorcee and women in divorce mediation (odds ratio [OR] = 14.09; 95% confidence interval [CI] = 4.82- 41.16) and the residing with children, parent and own siblings was a protective factor against domestic violence (odds ratio [OR] = 0.50; 95% confidence interval [CI] = 0.29- 0.86). There were no significant association between ages, level of education, employment, salary, number of children, knowledge and attitude towards gender role with domestic violence. In conclusion, the divorcee status and the women in divorce mediation were at risk of having domestic violence, but residing with children, parent and own siblings may protect the women from domestic violence. Those women should be protected and supported by multiple agencies and by having protection order.

PM6

BRCA1 2845insA Mutation Is Unlikely To Be A Founder Mutation Among Malaysian Malay Women With Invasive Breast Cancer

Suriati Mohamad, Sharifah Noor Akmal, Nurismah Md Isa, Rohaizak Muhammad, Norlia Abdullah, Nor Aina Emran, Nor Mayah Kitan

Introduction: BRCA1 germline mutations contribute to a significant number of familial and hereditary breast and/or ovarian cancers. Several BRCA1 mutations have now been found to occur in geographically diverse breast and ovarian cancer families. The BRCA1 2845insA mutation has been previously reported as a founder mutation among Singaporean Malay women with early onset breast cancer. However, the BRCA1 2845insA mutation has not been reported yet among Malaysian Malay women with breast cancer. **Objective:** The aim of this study is to determine the prevalence of BRCA1 2845insA mutation among Malaysian Malay women with invasive breast cancer.

Method: A total of 100 cases were collected among Malay patients with a history of histologically proven invasive breast cancer from UKM Medical Center (UKMMC), Hospital Kuala Lumpur (HKL) and Hospital Putrajaya (HPJ). Ten milliliters of peripheral blood were obtained from each fully informed, consented patient. Isolation of genomic DNA was done using standard protocol. Mutational analysis of the BRCA1 2845insA mutation was done using direct DNA sequencing. **Results:** One of 100 (1%) patients showed presence of BRCA1 2845insA mutation. One additional variant, 2731C>T (P871L) which was previously reported as a normal polymorphism was detected in 35 (35%) patients. **Conclusion:** The results of the study indicate that the BRCA1 2845insA mutation is rare and unlikely to be a founder mutation among Malaysian Malay women with invasive breast cancer.

PM7

Comparison Of Domains And Items Of Confirmatory Factor Analysis (CFA) Validated Versions Of USM Emotional Quotient Inventory (USMEQ-I) For Medical Program Applicants And Medical Students In Universiti Sains Malaysia (USM)

Wan Nor Arifin, Muhamad Saiful Bahri Yusoff

Introduction: Emotional intelligence (EI) is considered an important characteristic of a good medical doctor, thus its assessment among medical program applicants and medical students is invaluable. Universiti Sains Malaysia (USM) Emotional Quotient Inventory (USMEQ-i) is an EI inventory developed for medical student selection and assessment tool. The inventory was validated by confirmatory factor analysis (CFA) on medical program applicants and medical students in separate studies. **Objective:** To compare domains and items of CFA validated versions of USMEQ-i for applicant and medical student. **Methods:** Applicant's USMEQ-i and medical student's USMEQ-i were compared in term of selected fit indices, similarity of domains, items by domain, factor loadings, domain-to-domain correlation, average variance extracted (AVE), shared variance (SV) and construct reliability (CR). The values were obtained from preceeding validation studies for each population. **Results:** USMEQ-i consisted of two domains for EI model and one domain for Faking model, of which the models fit well on sample of applicants and medical students. For Social Competence domain, both versions had three similar items. For Personal Competence domain, only six items were similar in both versions. For Faking domain items, only two items were similar in both versions. Both versions were construct valid and reliable. **Conclusion:** The domains were similar in both versions. However, the items by domain were different, showing that some relevant items among applicants were not relevant among medical students. To obtain a universal inventory applicable to both populations, it is suggested to retain common items and revalidate the resulting inventory to both populations.

PM8

**Predictors Model For Work Related Low Back Pain Among Malaysian Nurses
Working At Hospital University Sains Malaysia**

Samer Khader Alnawajha, Wan Aasim Wan Adnan, Mohd Nazhari Mohd Nawawi, Che
Rabiaah Mohamed

Introduction: Low back pain (LBP) is distressing and is a major cause of work-related disability among nurses. **Objective:** To provide predictors model for work related LBP among Malaysian nurses working at Hospital University Sains Malaysia (HUSM). **Methods:** Validated questionnaire was distributed using a stratified random sample among an equal (300) nurses working at HUSM through a cross sectional design. SPSS® (v20) was used for data analysis through multiple logistic regression (MLR). **Results:** MLR showed that the nurses who were assuming incorrect body posture have increased odds of having LBP by 243 times than who did not ($p < 0.001$), nurses without work organization strategies have increased odds of having LBP by 32 times than who did not ($p < 0.001$). The nurses who perceived health status as poor have increased odds of having LBP by 0.072 times than who did not ($p = 0.040$). Null hypothesis for Hosmer Lemeshow goodness-of-fit test of the model is fit. Classification table showed 97.3% of cases were correctly predicted, the model can accurately discriminate 98.0% of the cases. **Conclusion:** Predictors model of work related LBP reasonably fits well, it will be utilized for further in-depth studies in relation to LBP.

PM9

Coping Strategy Effects On Post Traumatic Stress Disorder Among The Adolescent Three Years After Earthquake In Padang, Indonesia

Firdawati, Rosnah Sutan

On September 30th 2009, in Padang town, West Sumatera province, Indonesia was struck by an earthquake with strength of 7.9 on the Richter scale. Many houses and school buildings were collapsed. The government reported that 313 people were killed and 1,214 people severely injured. The purpose of this research was to examine the effects of the use of coping strategies (avoidance coping and approach coping) on post-traumatic stress disorder (PTSD) scores in adolescents (12-18 years old) three years after earthquake in Padang, West Sumatera. The cross sectional study design was conducted in junior and high school on Padang area. The sample was comprised 600 participants (12-18 years old). Data were collected using student self-report of University California Los Angeles Reaction Index- adolescent's versions (UCLA-RI) for PTSD Scores, and Kidcope scale for measure coping strategy. The results showed the prevalence PTSD (39.3%, n=600). It were significantly higher PTSD in respondent with higher avoidant coping ($p < 0.05$) and no significantly PTSD rate between lower and higher approach coping ($p > 0.05$). The impact and aftermath of earthquake posed a significant risk factor for PTSD symptoms. Coping strategies appeared on function differently between approach coping and avoidant coping. The suggestion of this study is to promote a suitable coping strategy depending upon the age of participant.

PM10

Clinical Characteristics Of Breast Cancer In HUSM

Siti Suhaila Mohd Yusoff, Nani Draman, Faridah Mohd Zin, Rodziah Ali, Norsa'adah Bachok

Background: Breast cancer is the commonest cancer among females in Malaysia, and continues to rise in incidence. The presentation is earlier in this region compared to the west whereby 51% diagnosed before 50 years of age. **Objective:** To describe the epidemiology, clinical features as well associated medical conditions and treatment modalities in breast cancer female patients followed-up in HUSM. **Materials & Methods** A cross sectional study was conducted from January 2012 to December 2012. 125 female breast cancer patients participated and were given self administered questionnaire. Medical record was also reviewed to obtain the clinical information. **Results:** Majorities were Malay (91.2%), married at the time of diagnosis (85.5%), unemployed (63.7%) and received up to secondary school education (75.8%); with mean age of 52.4 (SD10.71). 81.1% had no family history of breast cancer. 82.1% presented with breast lump, with mean size of 3.29cm (SD 2.36) and self detected (60.5%). Majority (83%) has no constitutional symptoms. Only 2.4% has nipple discharge. 12.9% has no retracted nipple (12.9%) whereas 5.6% has no peau de orange. Most was detected at stage 2(45%) followed by stage 3 (29.6%), stage 4 (18.4%). 89.6% of them have a ductal type of breast cancer. Majority undergone mastectomy (79.2%). Majority did not have associated medical condition such diabetes mellitus (82.3%), hypertension (72.6%), IHD (100%) and stroke (91.9%). **Conclusions:** These findings support the recommendation for screening mammogram at > 40 years old and support the use of Breast Self Examination for early detection of breast cancer.

PM11

Cd81 Protein Expression In Diffuse Large B Cell Lymphoma And Its Correlation With Gcb-Like And Non-Gcb-Like Subgroup

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Introduction: Many new markers have been found that could characterize diffuse large B cell lymphoma (DLBCL). CD81 is a newly discovered germinal centre marker that plays an important role in many cellular interactions. **Objectives:** 1) To demonstrate CD81 expression in DLBCL. 2) To correlate CD81 expression with clinicopathological parameters in DLBCL. **Methods:** A total of 121 cases were immunostained for CD81 using tissue microarray. Its expression was correlated with various clinicopathological parameters. **Results:** CD81 expression was found in 57/121 (47.1%) cases. 24/38 (63.2%) of germinal centre B cell-like (GCB) subgroup were CD81-positive while only 33/83 (39.8%) of non-GCB subgroup were positive (P=0.017). CD81 expression varied between cases and showed heterogeneous as well as homogenous staining pattern. There was no significant correlation between CD81 expression and IPI score, age, Ann Arbor stage, serum LDH level, number of nodal involvement, performance status, gender, bone marrow involvement, ethnic race, haemoglobin level in males and presence of B symptoms. However in females, we found significant correlation between CD81 expression and those with low haemoglobin (<13g/dl) and (P= 0.03). **Conclusion:** CD81 expression correlated with GCB-like subgroup i.e the one with better prognosis. This marker could be used as a predictor for risk stratification among the GCB-like and non-GCB-like subgroups.

PM12

**Effect Of Orlistat And Sibutramine Cessation On Obesity Indices And
Cardiovascular Risk Factors In Obese Subjects**

Aida Hanum Ghulam Rasool, Belqes Abdullah Mohammad Al-Tahami, Zulkefli Sanip,
Farah Diana Ariffin, Noor Salwah Omar

Objective The effects of ceasing anti-obesity drugs on anthropometric profile and cardiovascular risk have not been well studied. We aimed to evaluate the effects of orlistat and sibutramine cessation after a 9 months weight loss programme on anthropometric profile and cardiovascular risk factors. **Methods** 36 obese subjects who had undergone a 9 months weight loss programme with orlistat and sibutramine were followed up 4 months after ceasing the anti-obesity drugs. 18 subjects received 120 mg orlistat three times daily and 18 were on 10-15 mg sibutramine daily. Anthropometric and metabolic profiles, fasting blood sugar, insulin levels, insulin resistance (HOMA-IR), blood pressure, systemic arterial stiffness (quantified as central augmentation index) and energy expenditure were measured during 9 months treatment and 4 months after ceasing anti-obesity drugs. **Results** After cessation, there were significant increases in body weight (80.25 vs 77.40 kg), BMI (32.76 vs 31.56 kg/m²), waist circumference (93.03 vs 91.44 cm), body fat percentage (38.36 vs 37.52%), visceral fat percentage (15.39 vs 13.85%), triglyceride levels (1.32 vs 1.13 mmol/l), fasting blood sugar (4.76 vs 4.51 mmol/l) and systemic arterial stiffness (21.93 vs 19.77%). The magnitude of weight regain was smaller to that lost during orlistat treatment, but was higher in sibutramine-treated group. **Conclusion** Orlistat and sibutramine cessation produced weight regain and increased certain obesity indices as early as 4 months after cessation. Continuous rigorous follow up and reinforcement is needed to ensure weight regain is prevented or minimized to maintain beneficial effects achieved with anti-obesity drug treatment.

P16ink4a Is A Reliable Marker For Detection Of Premalignant And Malignant Lesions Of The Cervix

Sayyidi Hamzi Abdul Raub, Sharifah Noor Akmal, Nurismah Md Isa, Ahmad Zailani Hatta, Fauziah Kassim, Vicknesh Visvalingam, Zubaidah Zakaria, Muhammad Amir Kamarudin

Introduction: Human papillomavirus (HPV) is a necessary cause of cervical cancer and its precursors. Increase in the expression of HPV viral oncogenes in abnormal cells might increase the expression of p16^{INK4a}. **Objectives:** To determine p16^{INK4a} expression in abnormal cervical samples and correlate with HPV status. **Methods:** Immunocytochemical analysis of p16^{INK4a} expression was performed on 47 liquid-based cytology cervical samples, comprising atypical squamous cells of undetermined significance (ASC-US; n=5), low-grade squamous intraepithelial lesion (LSIL; n=9), atypical squamous cells, high-grade lesion cannot be excluded (ASC-H; n=3), high-grade squamous intraepithelial lesion (HSIL; n=20), squamous cell carcinoma (SCC; n=2), atypical glandular cell (AGC; n=5) and adenocarcinoma (ADC; n=3). The staining intensity was assessed using a 0 to 4 scoring system. Human papillomavirus (HPV) genotyping was carried out using a Real-Time polymerase chain reaction (qPCR) which can identify 12 different types of high risk HPV (HR-HPV) genotypes. **Results:** Of the 47 samples, 42 (89.36%) showed expression of p16^{INK4a}. P16^{INK4a} expression was identified in 3 (60%) cases of ASC-US, 7 (77%) LSIL and 4 (80%) AGC. All cases (100%) of ASC-H, HSIL, SCC and ADC showed overexpression of p16^{INK4a}. There is increase of p16^{INK4a} with increasing severity of cervical cancer. All p16 positive cases showed presence of HPV genotypes, however, not all HPV positive cases show expression of p16. **Conclusion:** Our results showed that p16^{INK4a} is a reliable marker for detection of premalignant and malignant cervical lesions. It also can be used as a surrogate marker of high-risk HPV infections. Combined p16 and HPV DNA testing will increase the sensitivity and specificity of detection of cervical abnormalities.

PM14

Occupational Characteristics Of Leptospirosis Among Army Personnel In Kelantan

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Leptospirosis is a zoonotic disease caused by infection of the bacteria belongs to *genus leptospira*. It can be transmitted from animals to humans, either direct or indirect. Humans are usually the incidental hosts. Army is identified as one of the high risk occupation in contracting leptospirosis. This study was done to determine the occupational characteristics of the army personnel in Kelantan and its relation with seroprevalence of leptospirosis. **Methodology:** A cross sectional study was conducted in December 2011 to April 2012 among 616 army personnel in Kelantan, whom fulfilled the inclusion and exclusion criteria. An interviewer guided questionnaire that has been validated was used. The occupational characteristics studied include job category, position, duration of employment in years, smoking status, frequency of operation or training that the respondent took part in a year, duration of latest operation, duration of latest training, types of toilets during training and operation, cuts or wounds during training or operation, washing hands with soap after work, shower immediately after work, contacts with animals during working and sighting of rats at workplace. MAT was used to determine the seroprevalence of leptospirosis. **Result:** Majority of the respondents were non officer and riflemen. The mean duration of employment was 11.50 (7.75) years. 455 (73.9%) out of 616 respondents were still smoking. Majority of the respondents washed their hands with soaps after work, showered after work and had no cuts or wounds during the operation or training. The seroprevalence of leptospirosis among the army personnel in Kelantan was 16.2% (95% CI: 13.32, 19.15). The significant occupational factor that contributes to seroprevalence of leptospirosis was the duration of latest operation (p value < 0.05). **Conclusion:** This study demonstrated that seroprevalence among army personnel in Kelantan was high. There was a relationship between occupational characteristic and seroprevalence of leptospirosis among army personnel in Kelantan.

PM15

Increased Tissue-Resident Endothelial Progenitor Cells In Astrocytic Glioma Patients

Priscilla Das, Tan Suat Cheng, Rapeah Suppian, Abdul Rahman Izaini Ghani & Yvonne-Tee Get Bee

Introduction: Astrocytic gliomas are highly vascularised brain tumor and rely upon angiogenesis for growth. Endothelial progenitor cells (EPCs) are angiogenic precursor in glioma. The EPCs are characterised by the expression of CD133⁺ and VEGFR2⁺ markers. **Objectives:** The study aimed to investigate the differences of tissue-resident EPCs in tumor tissue with normal adjacent tissue and its association with circulating EPCs in peripheral blood mononuclear cells (PBMCs) of astrocytic glioma patients. **Methods:** A total of 10 astrocytic glioma patients were recruited from Hospital Universiti Sains Malaysia. Tumor tissue and adjacent tumor tissue sections were sliced and stained with CD133⁺ and VEGFR2⁺ markers. The circulating EPCs in PBMCs (n = 6) were quantified using FACS based on the expression of CD133⁺ and VEGFR2⁺ markers. The paired t-test was used during data analysis. **Results:** The EPCs was significantly higher in brain tumor tissue compared to adjacent normal brain tissue ($1.68 \pm 0.88\%$ vs. $0.98 \pm 0.70\%$; $p = 0.004$). Significant positive correlation were also detected in tumor EPCs with adjacent normal brain tissue EPCs ($r = 0.75$; $p = 0.012$). Similar findings were observed for circulating EPCs and the brain tumor tissue. Higher count of EPCs were found in the resident brain tumor compared to the peripheral blood ($1.47 \pm 0.91\%$ vs. $0.012 \pm 0.013\%$; $p = 0.011$), suggesting that the cells homing to tumor site. However no significant correlation were found between the circulating EPCs and tissue-resident EPCs ($r = 0.36$; $p = 0.490$). **Conclusions:** This study demonstrated higher count of tissue-resident EPC in tumor tissue compared to those in circulation. The findings suggest that the tissue EPCs might have been recruited from the circulating EPCs to enhance the tumor growth.

PM16

Clinical And Laboratory Features In Neonatal Jaundice Due To Abo Incompatibility

Saidu U. Adiyatu, Rapiaah Mustaffa, Rosline Hassan, Noraida Ramli

Introduction: ABO feto-maternal blood group incompatibility in which a mother of blood group O delivered a neonate of either blood group A or B is associated with immune mediated neonatal hyperbilirubinemia. This is caused by maternal immunoglobulin G anti-A or anti-B that pass through the placenta and attached to the corresponding antigen positive fetal red blood cells and cause hemolysis of the cells. Unlike Rh hemolytic disease, hemolytic disease of the newborn caused by ABO incompatibility is usually mild to moderate in its severity. **Objective:** To characterize the laboratory features of neonatal jaundice due to ABO incompatibility. **Methodology:** This is a prospective study carried out at neonatal intensive care unit of Hospital Universiti Sains Malaysia. Fifty two full term jaundiced newborns with blood group A or B, belonging to blood group O mothers were chosen for the study. Total serum bilirubin, hemoglobin level, reticulocytes count and carboxyheemoglobin level was measured in all the neonates. Direct antiglobulin test was also carried out on the neonates' red blood cells. Results were analysed using SPSS version 20. **Result:** Of the 52 neonates studied with ABO incompatibility, 19 were blood group A and 33 were blood group B. There were 29 males and 23 females. Features were compared between blood groups A and B. Although no significant difference was found between the groups for the parameters measured, group B had higher level of hemolytic markers compared to group A. However, only one patient had exchange transfusion. **Conclusion:** Neonatal jaundice due to ABO incompatibility is common in group B neonate. They were associated with mild hemolysis.

PM17

5q Deletion In Myelodysplastic Syndrome: Cytogenetic, Clinical And Prognostic Elucidation

Asmida Isa, Goh Ai Sim, Chew Teng Kiat, Rosline Hassan, Ravindran Ankathil, Syed Atif Ali, Narazah Mohd Yusoff

Introduction and Objectives: Myelodysplastic Syndrome (MDS) is characterized by hypercellular bone marrow and low peripheral blood counts. The molecular pathogenesis of MDS warrants elucidation, however studies have shown the importance of detecting the numerous chromosomal abnormalities associated. This study was undertaken to investigate these chromosomal abnormalities in MDS patients using karyotyping and array-based comparative genomic hybridization (array-CGH), Agilent, USA. **Materials and Methods:** This study was done from 2011 to 2012. The subjects included 21 patients admitted in Hospital Pulau Pinang (HPP) diagnosed with MDS where they presented with unexplained cytopenias (anaemia, bicytopenia and/or pancytopenia). Their age ranged from 56 to 81 years old. Bone marrow aspiration and trephine biopsies samples were collected after obtaining consent. Ethical approval for this study was obtained from the institutional research committee and National Medical Research Registry (NMRR), Ministry of Health, Malaysia. Investigations were done which included G-banding karyotyping (resolution 450) and array-CGH. **Results:** In one of the patients, deletion of long arm of chromosome 5 or del (5q) was detected using both techniques. This patient is 70-year-old Malay lady who presented with anaemia, leucopenia, low red blood cell count, large platelets, hypolobulated megakaryocytes and 3% of blasts in the marrow. Loss of 5q arm at the locus q13q33 was detected by karyotyping. Analysis using array-CGH confirmed an interstitial deletion of 2.4 Mb long of chromosome 5q, between region 5q13.1-q13.2 (68, 350, 045-70, 716, and 337). **Discussion and Conclusion:** Del (5q) is the most frequent genetic abnormality found in MDS, and has its own distinct genotype and phenotype relationship. The deleted region in this patient lies in the region known as commonly deleted region (CDR). This region encompasses 24 genes flanked by D5S413 and the GLRA1 genes. Many genes were reported to be involved in the regulation of haematopoiesis. Studies are on - going for the detection of other chromosomal abnormalities in the other patients.

PM18

Relationship Between Methadone Level And Qtc Interval Among Patients Receiving Methadone Maintenance Therapy (MMT)

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Introduction: QTc interval prolongation leading to cardiac arrhythmias and sudden death are adverse drug reactions (ADR) most feared with methadone. It has been suggested that the ADR is associated with increased plasma methadone. This in turn leads physicians to not prescribe adequate doses in MMT. **Objective:** To determine the relationship between plasma methadone and QTc intervals among patients receiving Methadone Maintenance Therapy (MMT) for opiate dependence. **Methods:** One hundred and eleven patients were enrolled from 4 methadone clinics in Kelantan, Malaysia. QTc intervals were determined using a 12-lead ECG at baseline and at one month after stabilized MMT. Five ml blood concomitantly was collected to measure plasma methadone using ELISA. Data were analyzed using SPSS. **Results:** Methadone doses averaged 81 (SD 34) mg. and ranged from 20 to 190 mg giving an average plasma methadone of 258 (SD 222) ng/ml ranging from 11ng/ml to 1404ng/ml. QTc intervals ranged between 369 to 500 ms and had a mean (SD) of 408(24) ms. Linear Regression analysis showed a significant relationship between methadone trough concentration and QTc intervals ($p = 0.045$). A 10 ng/ml increase in trough concentration caused a QTc interval increment of 0.21ms (95% CI: 0.001, 0.041). A significant linear relationship also existed between methadone dose and trough methadone concentrations ($p = 0.038$). One mg increase in methadone dose increased methadone trough by 1.29ng/ml (95% CI: 0.07, 2.51). **Conclusion:** We suggest that plasma methadone may be useful clinically to monitor for QTc-interval prolongations in patients receiving MMT.

PM19

Co-Inheritance Of Compound Heterozygous Hb Lepore And B-Thalassaemia With Single Gene Deletion A-Thalassaemia (-A3.7 Type): A Case Report

Madzlifah A, Suziana MN, Azma RZ, Hafiza A, Azlin I, Malissa MY, Hidayati NS, Loh CK, Hamidah A, Zarina AL, Hamidah NH, Ainoon O

Haemoglobin (Hb) Lepore is a variant consisting of two α -globin and two $\delta\beta$ -globin chains. In heterozygote, it is asymptomatic with mild thalassaemic red blood cells indices but interactions with other haemoglobinopathies can lead to various clinical phenotypes. We report a case of 19-month-boy from a Malay family who presented with pallor and hepatosplenomegaly. His laboratory investigations revealed Hb 6.3 g/dl, RCC $3.32 \times 10^{12}/L$, MCV 62.7 fl, MCH 18.8 pg, MCHC 32.1 g/dl and RDW 30.9%. Peripheral blood film showed marked anisopoikilocytosis. Hb analysis by Sebia Capillarys showed normal Hb A2 (3%) with very low Hb A (2.2%) and very high Hb F (90.9%) level. There was additional abnormal Hb peak at zone 6 (3.9%) which was most likely Hb Lepore. DNA analysis for alpha thalassaemia genotype showed a single deletional alpha gene mutation ($\alpha\alpha/-\alpha^{3.7}$). Blood samples from his family members were also analyzed. His elder sister had almost similar laboratory findings. His father had mild thalassaemic red cell indices, his Hb analysis findings were consistent with β -thalassaemia trait and he also has single deletional alpha gene mutation ($\alpha\alpha/-\alpha^{3.7}$). His mother also had mild thalassaemic red cell indices; however Hb analysis findings showed presence of Hb Lepore. Based on these findings, a presumptive diagnosis of compound heterozygous Hb Lepore and β -thalassaemia with co-inheritance of single deletional alpha α -thalassaemia ($-\alpha^{3.7}$) was made for our patient. Hb Lepore is rare in Malaysia, and this interaction of Hb Lepore with alpha and beta thalassaemia to our knowledge, is the first case reported in this country.

PM20

Tualang Honey Modulates N-Methyl-N-Nitrosourea (MNU)-Induced Breast Carcinoma In Rats: A Preliminary Study

Sarfraz Ahmed, Nor Hayati Othman

INTRODUCTION: Breast cancer is common among women. Honey has been proven to be an effective chemopreventive agent in a variety of rat tumor models. Only a few studies suggested that honey might be useful in modulating breast carcinoma. **OBJECTIVES:** To study the modulatory effect of Malaysian Jungle Tualang honey (TH) on *N-methyl-N-nitrosourea* (MNU)-induced rat mammary carcinogenesis. **METHODS:** Twenty five female Sprague-Dawley rats were randomly divided into 5 groups with 5 animals each (n=5). Twenty animals were fasted overnight and received a single intra-peritoneal dose (80 mg/kg body weight) of MNU. Group 1 was administered with only distilled water (negative control) and Group 2 was also administered only distilled water (positive control). Groups 3, 4 and 5 were treated with 0.2, 1.0 or 2.0 g/kg TH daily respectively prior to one week MNU administration. The treatment was given by oral feeding and terminated at day 120. After 16 weeks of MNU administration, clinical examinations to observe the tumors were conducted once a week. At the end of the study, all animals were subjected to autopsy and tumors were harvested for histopathological examinations. **RESULTS:** The Control groups had 100% tumor incidence following MNU-administration. Tumors were detected clinically in 80% of animals in Group 3 and 60% each in animals of Group 4 and 5. Tumors were of smaller size in Group 3, 4 and 5. The mean tumor weight and volume in the control group (positive) were 11.89 ± 1.01 g and 10.82 ± 0.40 cm³ respectively. Honey was noted to reduce tumor size and volume. The mean tumor weight and volume were 7.41 ± 0.60 g and 6.47 ± 0.20 cm³ for Group 3; 4.83 ± 0.57 g and 4.30 ± 0.20 cm³ for Group 4; 3.40 ± 0.30 g and 3.56 ± 0.29 cm³ for Group 5. Histopathological examinations however revealed that adenocarcinomas were detected as major carcinomas. **CONCLUSION:** Tualang honey modulates the incidence and severity of mammary tumor development in MNU-induced mammary carcinoma in rats.

PM21

Effects Of Nutrition Education Intervention On Body Weight Status Among University Students In Terengganu

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Introduction: Reducing the amount of weight gained during young adulthood may help to reduce the risk of diabetes and cardiovascular disease. However, skipping breakfast do not necessarily leading to weight loss. **Objective:** This cluster randomised controlled study aimed to evaluate the effectiveness of implementing nutrition education (NE) intervention in reducing the increment of body weight status (BWS) in body mass index (BMI), weight, waist and hip circumference. **Methods:** University students from four public universities in Terengganu (n=417) were randomly assigned to either IG (n=205) or CG (n=212). For 10 weeks, IG received NE through three modes; 1) conventional lectures, 2) brochures and 3) text messages via short messaging system (SMS) while CG did not receive any form of NE. Students completed the Personal Details Form and anthropometric assessment at baseline and after 10 weeks. Data analysis was carried out using SPSS 16.0 utilising descriptive and parametric statistics. Additionally, analysis of covariance (ANCOVA) and adjusted effect sizes were also employed. **Results:** A total of 380 respondents (response rate=91.1%; IG=178; CG=202) completed both assessments (age=19.1±1.1 years; female=87.6%). With regard to BMI, majority were classified as normal-weight for both groups. Before and after controlling for covariates (baseline BWS and breakfast skipping), no changes of BWS were observed between both groups with relatively negligible adjusted effect size (range=0.06-0.17). However, the average of BWS were slightly reduced in IG compared to CG (p>0.05). **Conclusion:** These findings were expected due to short programme period and intervention design focusing on improvement for healthy eating and physical activity, suggesting that studies with a longer implementation period of NE could generate better outcomes in BWS.

PM22

**Depression Among Caregivers Of Children Following Traumatic Brain Injury In
North East Coast Of Peninsular Malaysia**

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Idris

Introduction Although depression is common among caregivers, little is known about such impact on the population of North East Coast of Peninsular Malaysia, particularly of the pediatric age group. **Objective** To determine the prevalence of depression and the associated factors among caregivers following TBI. **Methodology** A cross sectional study was conducted at the Neurosurgical Outpatient, Universiti Sains Malaysia. The caregivers were requested to answer questionnaires on socio demographic and a self administered Beck Depression Inventory. Those who had scored more than 10 were considered depressed. The medical records were reviewed for the injury factors. The analysis was done using SPSS version 18. **Results** 208 caregivers were recruited with the mean age of 44.4(SD8.76) years old. The average duration of care provided by the caregivers was 2.10(IQR7.00) months. The household income of the caregivers was RM106.6 (SD120.00). The age of the TBI children was 13.0. 22% sustained severe injury (GCS less than 8). 79.3% had good outcome (GOS=5). The mean duration since injury was 2.3(SD8.0) months. The prevalence of depression was 38.5% (95%CI: 31.89, 45.11). Depression among caregivers was significantly associated with household income, but not associated with severity of injury, outcome of injury, duration since injury, mode of injury or other socio demographic factors. **Conclusion** Prevalence of depression among caregivers of children following TBI is very much higher than the general population. Household income was found to have significant association with depression. Thus, depression has to be expected and caregivers' needs should be addressed in the rehabilitation program.

PM23

The Effect Of Wet Cupping Therapy (Bekam) On Renal Function Test In Healthy Individual

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Introduction : Cupping is a form of complementary medicine found in many cultures worldwide. It is a therapeutic method involving the application of suction by placing a vacuum cup or jar, usually by fire or suction pump onto the affected or any part of the body surface, for the purpose of curing the disease. **Objective** : The aim of this study was to determine the effects of wet cupping on renal function test in healthy individual

Methods : Sixty two subjects aged between 30 and 60 years old, without chronic or renal disease were randomly assigned into control and intervention group. Subjects in the intervention group were assigned for wet cupping, whereas individual in the control group were remained untreated. Two sessions of wet cupping had been performed; at the start of the study and at the third month. Venous blood sample were collected for serum urea, creatinine and uric acid; measured at baseline, first month, third month (before the second session of cupping) and fourth month for all participants. Repeated measure ANOVA had been used for the statistical analysis. **Results** : Subjects in the intervention group had significant reductions from baseline to the first, third and fourth month for serum urea (MD=0.39, p=0.007; MD=0.34, p=0.003; MD=0.52, p=0.009) and creatinine (MD=7.13, p<0.001; MD=4.07, p=0.008; MD=6.87, p<0.001) respectively. For serum uric acid, there were significant reductions from baseline to the first (MD=48.94, p=0.005) and fourth month (MD=45.42, p=0.047). There was no any significant reduction in the control group. At fourth month, serum urea (mean=3.68, 95% CI: 3.40, 3.96) and serum creatinine (mean=63.39, 95% CI: 59.03, 67.74) in the cupping group were significantly lower compared to control group. Serum urea, creatinine and uric acid were significantly reduced by 12.4%, 9.7% and 12.2% respectively at fourth month. **Conclusion** : Wet cupping therapy showed significant reductions in renal function test in healthy subjects. Therefore it could contribute in reducing the risk and preventing the chronic renal disease and hence cardiovascular disease in healthy individual without any side effects.

PM24

**An Evaluation Of Cobas B221 Blood Gas Analyzer As A Point Of Care Testing
Equipment**

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Introduction: Evaluation of arterial blood gases are crucial in critical care. Results obtained must be correct and precise for management of patients. Cobas b221 claimed to be a simple single handed operating analyzer which provides comprehensive information and can be placed as a point of care testing equipment in critical care areas.

Objective: To evaluate Cobas b221 blood gas analyzer to the existing ABL5 and ABL800 in Chemical Pathology laboratory using 3 parameters: pH , pCO₂ and pO₂. Method: Patients samples received at the central diagnostic laboratory were analyzed on ABL5 or ABL800 and were concurrently analyzed on Cobas b221 after ensuring the quality controls were in for all the analyzers. Data obtained from Cobas b221 were used to calculate the coefficient variation (CV) and were correlated to the existing analyzers of ABL5 & ABL800. Results: A total of 20 patients samples were tested. A CV of less than 5% were obtained for all the three parameters. Good correlation were noted between Cobas b221 and ABL5 and ABL 800 with coefficient values between 0.99 to 1.00. Conclusion: Cobas b221 blood gas analyzer produces similar results to ABL5 and ABL800. It can be an option for point of care testing equipment in critical care management.

PM25

A Study On Stress And Its Association With The Academic Performance Of Undergraduate Medical Students At Universiti Kebangsaan Malaysia

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Introduction: Student can be stressed due to different stressors such as academic, financial, health related or loss of close family member or friend etc. Stress is the bodies' reaction both neurologically and physiologically to adapt to the new condition. Stress has negative effect on the academic performance of the students. This study was aimed to explore the stress and stressors and also to determine the association between stress levels and the academic performances in terms of cumulative grade point average (CGPA) of undergraduate medical students. **Methods:** It was a cross sectional study conducted among all 234 year-4 medical students of Universiti Kebangsaan Malaysia (UKM), session 2011-2012. Sample size comprised of 179 students after fulfilling all inclusion and exclusion criteria. A validated Medical Students' Stressor Questionnaire (MSSQ) was used to collect the data. Stress level and its association with CGPA of semester-1 examination were analysed. **Results:** Response rate was 76.49%, where 72% were female and 69% resided in the hostel. Academic Related and Social Related Stressors caused for severe and high stress in 84% and 49% respondents respectively, with insignificant differences between gender and residency. Respondents with high and severe stress level were observed to have higher CGPA. **Conclusion:** UKM medical students are highly resourceful to manage their stress well and thus denying the negative effect of stress towards their academic performance. Medical schools should trained students exposing various personal and professional developmental activities that able to face the everyday challenges and manage stress well and thereby achieve better academic performance.

PM26

Assessing the effectiveness of Delorme and Oxford Techniques for Dominant Side of Quadriceps Muscle and Evaluate by Isokinetic Machine

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Background and objective: Progressive resistance exercise (PRE), such as DeLorme and Oxford regime is a method of enhancing the ability to generate muscle force. DeLorme defined as the ten repetition maximum (10 RM) as the weight of an individual could lift only ten times before temporary failure of the muscle occurred meanwhile Oxford regime having full 10 RM at the first set and then reduced weight of 10 RM in the two remaining sets (Fish, et al., 2003; Razmjou, et al., 2010). In previous studies, these regimes have shown improvement in muscular capability, however, the proven effectiveness of these regimes were still unclear by the appearance of many efficient ways to train muscle strength development. Therefore, the goal of this study was to assess the effectiveness of DeLorme and Oxford technique in dominant quadriceps muscles by isokinetic evaluation.

Method: In this experimental study design, 41 subjects from the Faculty of Health Science students who were male (9 (21.95%) and female (32 (78.05%) was recruited to perform Delorme, Oxford and non-regime technique. Subjects were trained three times a week for 6 weeks based on the study protocol at Physiotherapy's High Performance Gymnasium. A statistical result was analyzed by Wilcoxon signed-rank test and Kruskal Wallis test.

Result: There were changes in all groups, but, the median difference between groups are not statistically significant in peak torque, average power, total work, acceleration time, deceleration time and average peak torque of quadriceps after 3 and 6 weeks for both velocities.

Conclusion: Both regime techniques show muscular improvement in pre and post training.

PM27

A family study of compound heterozygous for Haemoglobin E and Haemoglobin Constant Spring in a Jahud family

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Interaction between alpha and beta thalassaemia results in improvement in the red blood cell indices of thalassaemic individuals. Haemoglobin Constant Spring (Hb CS) and Haemoglobin E (Hb E) are common alpha and beta thalassaemia variant in this part of the world. In Peninsular Malaysia's Orang Asli, Senoi sub-group represent more than half of the population. One of its sub-ethnic group i.e. Jah Hut showed a very high prevalence of alpha and beta thalassaemia variants. Quite a number of them had interactions of alpha with beta thalassaemia due to marital consanguinity. This write up highlights the haematological parameters of ten members of a Jah Hut family who are carriers of Hb CS and/or Hb E. Two of them had both Hb CS and Hb E. A comparison was made for both compound and single disease carrier states. Almost all single carriers (8/10) of Hb CS or Hb E showed normal red blood cell indices except for hypochromicity. Similar findings were also seen in the compound state (2/10). In conclusion, routine screening using full blood count may miss quite a number of Hb CS or Hb E carriers as well as those in the compound state. Further test using capillary electrophoresis to quantitate the abnormal Hb will resolve the problem.

PM28

Molecular analysis of Rh D Negative blood donors in Malaysia

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Introduction: The Rh blood group system is highly polymorphic and next to the ABO system is the most clinically significant in transfusion medicine. Most studies of the molecular basis of Rh Blood group system have been conducted in Caucasians and African population. There is limited data on information of the molecular basis for Rh genotypes in Malaysia.

Objectives: This study was aimed to analyse the Rh genotypes of RH D negative blood donors in Malaysian population.

Methods: A total of 181 RH D negative blood samples was obtained from blood donors from 4 different ethnic groups (58 Malays, 25 Chinese, 75 Indians and 23 others). All samples were genotyped by sequence-specific polymerase chain reaction or sequencing of the RHD gene.

Conclusion: Of 181 blood donors samples that we analysed, the distribution of genotypes showed that 181 (76.2%) ccee, 31 (17.1%) Ccee, 6 (3.3%) CcEe, 4 (2.2%) CcEe and 2 (1.1%) Ccee. From this study, there were 35 (19.3%) samples showed the present of the RHD gene. The nucleotide mutations also found in some of those samples. There are significant differences in the frequencies and molecular characteristics of D variants among Malaysian population, compared to Caucasian and African population. A correct assignment of all blood donors as D+ or D- is not possible using serotyping alone, genotyping offers the only exacy categorization of all cases.

PM29

A severe α -thalassaemia due to compound heterozygosity for rare Codon 59 (GGC>GAC) with IVS I nt I (G/A) mutations in $\alpha 2$ -gene

Hafiza A, Tang YL, Azma RZ, Azlin I, Loh CK, Hamidah A, Zarina AL, Ainoon O

Non-deletional mutation of codon 59 (GGC>GAC) of the α -globin gene results in a highly unstable haemoglobin (Hb) molecule, Hb Adana. Carriers are usually asymptomatic with thalassaemia red blood cell indices. However, when combined with other α -globin gene mutations, the resultant phenotype is usually more severe than the deletional forms. The IVS I nt I (G/A) mutation in $\alpha 2$ -gene is a recently found mutation believed to cause α -thalassaemia by preventing normal splicing of the pre-mRNA. We present a case of compound heterozygosity of these two rare mutations in a 6-year-old boy who presented with anaemia since the age of 15 months old and required two monthly blood transfusions since then. His laboratory investigations revealed haemoglobin 5.8g/dl, RCC 2.78 x 10¹²/L, MCV 65.9 fl and MCH 20.9 pg and marked red cell anisopoikilocytosis and numerous target cells on peripheral blood film. Hb analysis by high performance liquid chromatography resulted HbA₂ and HbF levels of 3.7% and 3.3% respectively. DNA analysis for α -thalassaemia revealed compound heterozygosity for Cd59 (GGC>GAC) and IVS I nt I (G/A) mutation in $\alpha 2$ -genes. To the best of our knowledge, this is the third reported case involving IVS I nt I (G/A) mutation in $\alpha 2$ -genes and furthermore, in this case, it is co-inherited with the hyperunstable Hb Adana, which resulted in a severe α -thalassaemia phenotype.

PM30

Histological differences between autograft, allograft and xenograft transplanted on full thickness wounds in *Oryctolagus cuniculus*

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Introduction: Nowadays, skin grafting has evolved into an essential component of reconstructive surgery. Grafting may be used to accelerate healing and reduce insensible fluid loss from burns and other wounds, reduce scar contraction, and enhance cosmesis. The mixed reports about the survival of allogenic and xenogenic keratinocytes need to be substantiated further to determine their role in wound healing.

Objectives: To evaluate histologically the wound healing potential of transplanted cultured epidermal autograft (CEAuto), allograft (CEAllo) and xenograft (CEXeno) in rabbits (*Oryctolagus cuniculus*).

Methods: The rabbit and rat skins were harvested and cultured in-vitro with specific growth media. Four full thickness wounds (2cm x 2cm) were created on the dorsum of the rabbits. CEAUTO, CEAllo and CEXeno (from the rat) were sprayed onto the three freshly created wound along with fibrin using the Tissomat device (Baxter, Austria). One wound acted as a control to which no cells were added. The wounds were monitored in every two days for four weeks. After four weeks, the rabbits were euthanized and skin biopsies were taken from each healed wound and subjected to Haematoxylin and Eosin staining.

Results: The three layers forming the skin could be identified in all skin sections. There were no major differences between the grafts and the normal tissue section. The only difference that was noticed was that the thickness of the epidermis layer in the case of xenograft transplant was thinner when compared to the autograft and allograft.

Conclusion: All the three grafts, namely autograft, allograft and xenograft have the potential to be used as a skin substitute to replace skin defects. This can overcome the limitation of autologous skin donor site especially in burn cases.

PM31

The Effect Of Channa Striatus (Haruan) Extract On Total Antioxidant Status During Wound Healing In Post Lower Segment Caesarean Section (LSCS) Women

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Introduction: Channa striatus (Haruan) is widely consumed in Malaysia to promote wound healing. Wound healing is a dynamic process that involves three overlapping phases; inflammation, new tissue formation and tissue remodeling. During inflammatory phase, large amount of reactive oxygen species (ROS) are produced resulting in severe cell damage which in turn delays wound healing. C.striatus has been proposed to have antioxidant properties counteracting ROS and enhancing wound healing.

Objectives: This study was done to compare the level of total antioxidant status (TAS) in patients receiving Channa striatus extract and placebo during wound healing of post Lower Segment Caesarean Section (LSCS) women.

Methodology: This was a randomized; double blinded, placebo-controlled study conducted in Hospital Universiti Sains Malaysia (HUSM). The treatment group consumed 500mg of freeze dried Channa striatus extract daily while the placebo group consumed 500mg of maltodextrin daily for 4 weeks. Venous blood was taken from each subject postoperatively at day 1 and week 4 and was analysed using Selectra E machine. The data obtained were analysed using SPSS Version 20.

Results: A total of 32 patients were studied, 19 patients were in the treatment group and 13 in the placebo group. The level of TAS was significantly different within group between day 1 and week 4 for those consumed Channa striatus and placebo, with the mean difference (95% CI; p-value) of -0.2 (-0.30, -0.13; <0.001) and -0.2 (-0.29, -0.11; <0.001) respectively. However, there was no significant difference in the level of TAS between groups at day 1 and week 4.

Conclusion: This study could not prove that taking Channa striatus would increase the level of TAS at day 1 and week 4 compared to placebo.

PM32

Saliva Parameters and Oral Mucosa Lesions

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Introduction: Saliva is natural body fluid continuously bathing oral mucosa and its surrounding structure. However, not many studies focusing relationship between salivary parameters and their association with present of oral mucosal lesions. A few of them however resulted in non-conclusive evidence.

Objective:

This study was conducted to assess the salivary parameters characteristic and oral mucosa lesion among Siamese population in Kota Bharu, Kelantan.

Methodology:

A cross-sectional study was carried out at fourteen randomly selected Siamese villages located in six districts of Kelantan. A total of 152 respondents' who fulfill inclusion and exclusion criteria was selected using systematic random sampling. Saliva collection procedure and analysis was done using Saliva-Check BUFFER® by GIC Co. Japan. Intraoral examination was done by single examiner, using WHO (1997) guidelines. Data were entered and analyzed using SPSS version 13.0 (SPSS Inc., Chicago, USA). Independent sampled t-test was used to analyses mean differences in salivary parameters.

Result: Saliva of respondents with oral mucosa lesion (OML) was found significantly low in resting pH (6.26 (0.440)) compared to respondents without oral mucosa lesion (NOML) (6.88(0.379) ($p < 0.05$)), and also saliva buffering capacity among OML respondents was significantly lower (11.48 (0.709)) compared to NOML respondents (11.76 (0.481)) ($p < 0.05$).

Conclusion: It is concluded that those with oral mucosa lesions have low saliva buffering capacity but saliva more acidic compare to respondents without oral mucosa lesions.

PM33

Validation of KPP questionnaire on respiratory tract infection protective measures among Malaysian Hajj pilgrims 2012

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Introduction: Respiratory tract infection was the common infection among pilgrims during Hajj pilgrimage. A survey may be help in preventing highly potential infections during Hajj pilgrimage.

Objective: To validate the newly developed knowledge, perception and practice (KPP) questionnaire on respiratory tract infection protective measures among Malaysian Hajj pilgrims.

Methods: Malaysian Hajj pilgrims completed responding anonymous survey questionnaire prior to and following travel to the 2012 Hajj. A self-administered questionnaire with 74 items was developed which assessed socio-demographic, sources of pilgrimage orientation, KPP related to respiratory tract infection protective measures and sources of health information during the Hajj. Content validity and face validity was conducted. Exploratory factor analysis (EFA) for construct validation on KPP domains was done and reliability on items remained was also checked.

Results: About 318 Hajj pilgrims returned the completed questionnaires. A hundred out of them were used for EFA. The KMO value ranged for KPP domain was 0.611, 0.71 and 0.63 to 0.82, respectively. Three of them gave a significant Bartlett's Test of Sphericity ($p < 0.001$). The internal consistency Cronbach's alpha were acceptable for all domains which were 0.60, 0.81 and 0.63 to 0.87, respectively. Only 46 items were retained after data reduction.

Conclusion: The KPP questionnaire was valid and reliable for further study and the rests of questionnaire will be used for further Confirmatory Factor Analysis (CFA).

PM34

**The Effect of Anti-Obesity Drugs on Weight Reduction and Cardiometabolic Markers
in Failed Lifestyle Intervention**

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Objective: This study aimed to determine the effect of anti-obesity drug treatment in overweight and obese subjects who had failed to achieve satisfactory weight loss after a 9 months' weight loss intervention programme involving education on lifestyle modification.

Methods: 25 subjects had originally undergone 9 months intervention programme aimed to reduce weight involving education on lifestyle modification. 11 subjects who had failed to reduce their weight satisfactorily (still having body mass index (BMI) ≥ 27 kg/m² after intervention) were offered anti-obesity drugs for 4 months. Anthropometric measurements, body composition, metabolic and cardiovascular (CVS) profiles were measured at 9 months after completing lifestyle modification, and repeated after 4 months on anti-obesity drugs. Anti-obesity drugs used in this study were orlistat 120 mg three times daily or sibutramine 10 – 15 mg daily.

Results: These 11 subjects did not significantly reduce weight when they were on 9 months lifestyle modification. Weight reduced significantly after 4 months drug treatment by 2.06 kg ($p=0.041$). Visceral fat significantly reduced from 13.7 (6.5) to 12.9 (6.9) % ($p=0.036$) after drug treatment. A borderline reduction in waist circumference was seen (87.2 (10.2) vs 85.9 (11.0) cm, ($p = 0.073$)). No difference was seen in lipid profile, fasting blood sugar, insulin level and resistance, blood pressure and arterial stiffness with 4 months anti-obesity agents.

Conclusion: Orlistat and Sibutramine reduced weight in subjects who had failed weight reduction with lifestyle medication. Weight reduction was however modest at 2.7% and was not associated with improvements in other CVS and metabolic risk markers.

PM35

Effect Of The Antihypertensive Drug Clonidine On Oxidative Stress Markers In Kidney Of Spontaneously Hypertensive Rat

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Introduction: Oxidative stress has been implicated in hypertension and the subsequent organ damage including the kidneys. Anti-hypertensive drug treatment is generally used to control hypertension. However its effect on oxidative stress markers in kidney has not been well studied.

Objective: To examine the effect of the anti-hypertensive drug clonidine on oxidative stress markers in kidney of spontaneously hypertensive rats (SHR) as compared to normotensive Wista-Kyoto (WKY) rats.

Methods : 4 weeks old male rats were divided into 4 groups (WKY, WKY + Clonidine, SHR, SHR + Clonidine, n = 6 /group). Clonidine treatment groups were administered with clonidine (0.5 mg kg⁻¹ day⁻¹) in drinking water from 4 weeks until 28 weeks. Body weight and blood pressure were measured regularly and the rats were sacrificed at the end of 28 weeks. The kidneys were collected for the estimation of thiobarbituric acid reactive substances (TBARS) and Total Antioxidant Status (TAS).

Results: The systolic blood pressure of untreated SHR increased progressively from 6 weeks onwards and was significantly higher than WKY from then onwards. Clonidine treated SHR showed significantly reduced blood pressure to normal values. Untreated SHR had significantly lower (p<0.01) body weight than age-matched WKY from 10 weeks onwards but clonidine treated SHR showed no significant difference. Clonidine treated SHR when compared with untreated SHR, showed significantly reduced (p<0.01) TBARS level and significantly higher (p< 0.01) TAS level in the kidney, indicating reduced oxidative stress.

Conclusion: The findings indicate that clonidine treatment reduces systolic blood pressure as well as oxidative stress in the kidney of SHR.

PM36

Association between IL-31 Serum Levels, Smoking Status, Occupational Exposure and Area of Living with Atopic Dermatitis

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Introduction: Atopic dermatitis (AD) resulted from dysregulated Th2-biased immune responses to the environmental stimuli. Cytokines including IL-4 and IL-10 appear to be an essential requirement in Th2-biased immune responses. This study was done to compare between recently discovered IL-31 serum levels in normal controls and AD patients in Kelantan, Malaysia.

Methods: This was a cross-sectional study of 70 samples of AD patients attending the skin clinic of Hospital Universiti Sains Malaysia and Hospital Raja Perempuan Zainab II. 70 samples of normal controls were taken from healthy people who were free from allergic history. History taking was done by physician. 5 ml of blood were collected from the normal control subjects and patients. Then, the blood was centrifuged and analyzed for IL-31 using ELISA kits (Human IL-31 Duoset, RnD System).

Results: Independent T-test revealed that there was no significant difference in mean levels of IL-31 between AD and controls, however mean of IL-31 was higher in AD (mean=8102.62; SD=38170.25) as compared to control group (mean=2195.55; SD=9016.57). Multiple logistic regressions revealed that there was no significant association between IL-31 and AD after adjusted for smoking status, occupational exposure and area of living ($p=0.550$). Multiple logistic regressions also revealed that there were significant associations between smoking status and occupational exposure with AD. The results showed that the smokers were 31.22 at odds of having AD (95% CI =3.77, 258.44) as compared to non-smokers while those without occupational exposure were less likely to have AD as compared to those with occupational exposure (OR=0.15; (0.95% CI =.007, 0.35). There was no significant association between area of living and AD ($p= 0.137$).

Conclusion: The results of this study suggest that although the level of IL-31 serum levels was higher, there was no significant difference in IL-31 serum levels between atopic dermatitis patients and non allergic control. In addition there were significant associations between smoking status and occupational exposure with AD.

PM37

The effects of Cinnamon and Indomethacin in prevention of Delayed Onset Muscle Soreness (DOMS)

Abbas Meamarbashi and Mojtaba Abbasian

Introduction: Cinnamon has been found to possess antioxidant and anti-inflammatory effects.

Objectives: The purpose of this study was to compare the effects of cinnamon and indomethacin in the prevention of DOMS after one session eccentric exercise.

Methods: Thirty-five non-active and healthy male students (Age: 19.1 ± 1.14 y) were randomly divided into three experimental groups: cinnamon (n=10), indomethacin (n=10) and control (n=15) groups. Subjects in the cinnamon group, received six capsules containing 420 mg of cinnamon powder and consumed during one week before and three days after eccentric exercise. Control group received three times daily a placebo capsule. Muscle soreness protocol performed with 80% of their maximum force in four sessions and each session was consisted of 20 repetitions with three minutes rest between sessions. One week before DOMS protocol and immediately after, 24, 48, and 72 h after protocol, maximum isometric and isotonic forces, systolic and diastolic blood pressure, heart rate, breath rate, plasma concentrations of CPK and LDH were measured. Repeated measure ANOVA with Bonferroni adjustment was used to evaluate the effects of cinnamon and indomethacin compare to the control group. Independent t-test was used to compare the results between groups in difference time series.

Results: The results indicate that both experimental groups shown significant and similar changes in the level of LDH, CPK at 48 and 72 h ($P < 0.0001$), and isotonic force in 48 h and 72 h ($P < 0.0001$). Cinnamon group showed better effects as compared with indomethacin in the levels of CPK in 24 hours ($P < 0.01$) and LDH 24 h ($P < 0.005$), isotonic force 72 hours ($P < 0.05$) after the performance of eccentric activities.

Conclusion: The study results indicate that cinnamon has significant preventive effects in the functional and biochemical signs of DOMS after one session eccentric exercise. It seems cinnamon can be better alternative to the anti-inflammatory drugs in prevention of DOMS.

PM38

Anti-CD20 Therapy for SLE with Resistant Thrombocytopenia: a Case Report

Jason S. Cabot and Fawwaz S. Al Joudi

Introduction: Systemic lupus erythematosus (SLE) is a common autoimmune disease with a variety of potential overlapping pathologies and manifestations. Immune thrombocytopenia, caused by anti-thrombocyte antibodies, often is resistant to routine therapy, and is particularly difficult to treat when chronic.

Case Report: A 37 year old female was seen with SLE and thrombocytopenic purpura (TP) after 8 years of vigorous therapy including several immunosuppressives and cyclophosphamide, followed by splenectomy and continued prednisone administration (10-20 mg/d) for seven years. Platelet counts on prednisone were 60-90 x 10³/cmm³. The patient although not anaemic, had a sustained macrocytosis with a reticulocyte count at the upper limit of normal, suggesting a slight hemolysis (Evan's syndrome). She was treated with the anti-CD20 monoclonal antibody, rituximab 375mg/m² weekly for four weeks and the prednisone was slowly tapered. She had a slow response with rise of platelet count to normal (>150 x 10³/mm³) and all peripheral signs of SLE abated. The MCV returned to normal, erythrocyte sedimentation rate (ESR) returned to normal, arthropathies and Raynaud's phenomenon resolved. She continues to have a normal platelet counts and MCV for two years post therapy.

Conclusion: It is suggested that rituximab be tried in SLE with resistant TP prior to consideration of splenectomy and also for active SLE poorly responsive to standard therapy.

Shear bond strength evaluation of orthodontic brackets bonded with RMGIs after enamel surface deproteinization

Ayman Anaam Saied El nafar, Mohammad Khursheed Alam, Rozita Hassan

Introduction: Orthodontic bond strength can theoretically be increased by removing the organic substances from the enamel surface before etching (deproteinization), because the resulting etch-pattern is predominantly type 1 and 2, instead of type 3. Fluoride-releasing resin-modified glass ionomer cements (RMGIs) might be used to bond brackets to reduce the incidence of white spot lesions, a major current iatrogenic effect of orthodontic treatment, is a worthy cause which might be achieved due to the fluoride-releasing properties of RMGIs.

Objective: To determine whether deproteinization of human dental enamel surfaces, with 5.25% sodium hypochlorite (NaOCl) before etching and sandblasting, increases orthodontic bracket shear bond strength (SBS) of RMGI adhesive.

Materials and Methods: One hundred twenty extracted human premolars were cleaned, and randomly divided into 4 groups including 2 groups control, with 30 premolars in each group. In group 1(control) brackets were bonded to the teeth pretreated with acid etching. Group 2(control 2) sandblasting for 2 second was used for surface treatment . The buccal surfaces of the premolars in experimental groups 3 was deproteinized with 5.25% NaOCl for 1 minute followed by rinsing, drying, and acid etching for 30 seconds. Subsequently, the acid was rinsed off, the enamel was dried . Group 4 deproteinization followed by sandblasting was performed. All brackets were bonded by Fuji Ortho. The teeth were then stored in distilled water at room temperature .The brackets were debonded using a universal testing machine to measure SBS. An analysis of variance was used to determine whether there was a significant difference in SBSs between the 4 test groups, together with a post hoc test to determine possible significant differences among the pair of means.

Results: There were statistically significant differences in the SBS between all groups with P value> 0.001. The mean SBS for NaOCl with acid etching was $17 \pm$ MPa and without NaOCl $13.86 \pm$ MPa, statistically there was significant difference between the 2 groups with P value >0.001 The mean SBS for NaOCl with sandblasting was $9.63 \pm$ MPa and without NaOCl $9.08 \pm$ MPa, statistically there was no significant difference between the 2 groups with P value.

Conclusion: It was concluded from this in vitro study that with NaOCl use, bracket bond strength with Fuji Ortho LC is higher than without out NaOCl. So that fluoride-releasing RMGIs may possibly be used to bond brackets to reduce the incidence of white spot lesions with less amount or percentage of acid etching to seal the etched area.

PM40

Genetic and treatment-related factors in inhibitor development among severe haemophilia A patients – a preliminary report

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Introduction: Development of inhibitors against factor VIII (FVIII) is an important complication and affects management of haemophilia A patients. Genetic and treatment-related factors influencing inhibitor development have been reported.

Objective: To study presence of intron 22 inversion and treatment-related factors in FVIII inhibitor development, in severe haemophilia A at Pusat Darah Negara.

Methods: Blood samples for DNA analysis were obtained from 70 patients of severe haemophilia A: 35 cases with inhibitors and 35 cases without inhibitors (controls) with informed consent. Multiplex PCR analysis for intron 22 inversion of the factor VIII gene were performed for all the cases. Intron 1 inversion of FVIII gene analysis was done only for cases negative for intron 22 inversion. Demographic, clinical and management data were collected.

Results: Intron 22 inversion in severe haemophilia A with inhibitors was positive in 45.5% (15 cases), and in 54.5% (18 cases) of cases without FVIII inhibitors. Intron 1 inversion was not detected in the severe haemophilia A with inhibitors, but was only detected in the control group (3 cases). There was no significant differences seen in the analysis of other risk factors associated with inhibitor development between cases and controls.

Conclusion: In this preliminary study, there is no significant difference between intron 22 inversion, family history, ethnicity and treatment related factors with FVIII inhibitor development. Thus, a multi-center study with a larger study population is needed to determine the risk of FVIII inhibitor development among severe haemophilia A patients in this country.

PM41

Association between Carotid-Femoral Pulse Wave Velocity with CVD Risk Factors and Framingham Point Total among Hypertensive Patients in Primary Health Care

Norhayati MN, Hanif I, Rasool AH, Azidah AK

Introduction: Carotid-femoral pulse wave velocity (cfPWV), a marker of central arterial stiffness is highly predictive of cardiovascular events.

Objectives: To describe the 10-year cardiovascular disease (CVD) risk and to determine the association between cfPWV with CVD risk factors and Framingham point total among hypertensive patients.

Methodology: A cross-sectional study was conducted from January to December 2012 in Out-patient Clinic in HUSM. The Framingham Coronary Disease Risk Prediction Score for CVD risk and cfPWV index for aortic stiffness were used. Simple and General Linear Regression confirmatory analyses were done using SPSS version 19.

Results: There were 197 hypertensive subjects involved with a response-rate of 92.4%. The mean (SD) of Framingham point total was 13.3 (3.66). The 10-year CVD risk of <10%, 10-20% and >20% was 71.1%, 25.4% and 3.6% respectively. The cfPWV was significantly associated with CVD risk factors of age (<0.001), waist-hip ratio (0.003) and systolic blood pressure (0.002). cfPWV was also significantly associated with Framingham point total (P=0.002).

Conclusion: Arterial stiffness, as indexed by cfPWV, is associated with CVD risk factors (age, SBP, WHR) and Framingham point total.

PM42

Genotype Testing of SNPs Associated With Lactose Tolerance in Malaysian

Nur Ashikhin Gandah, Yasmin Ooi, Peter Barling, Alison Fong and Ping-Chin Lee

Introduction: Lactose intolerance (LI) is caused by low level of intestinal enzyme namely lactase phlorizin hydrolase (LPH) and the trait is known as lactase non-persistence (LNP) whereas individual with normal level of LPH referred as lactase persistence (LP). Previous studies reported six SNPs associated with LP found in MCM6 gene including G/A-22018, G/C-14010, T/G-13915, C/G-13907, C/T-13910 and T/C-3712 in which the C/T-13910 SNP is most extensively used in genotyping test for LP in different population but the incident of LP and LNP in Malaysian is still not known.

Objective: To determine the presence of LP associated SNPs located in the promoter region of MCM6 gene in Malaysian.

Methods: One hundred and eighty volunteers were enrolled in this study and have been categorized as LP or LNP using hydrogen breath test (HBT) and serial blood glucose measurements. One hundred peripheral blood samples were collected successfully and DNA was extracted using alkaline lysis method. Targeted sequences were amplified using PCR followed by direct sequencing.

Results: The prevalence of LNP in Malaysian was found to be unexpectedly high in at 95% (N=171) and the LP was only 5% (N=9). All the LNP subjects were found to carry the homozygous G/G genotype for G/A-22810 SNP, except one was heterozygous (G/A), indicated that the putative LNP genotype (G/G) may be generally associated with LNP in Malaysian which is similar to other populations such as Finnish, Japanese-Brazilian, etc. Besides, eight out of nine LP subjects were homozygous (C/C) and only one was heterozygous (C/T) for C/T-13910 SNP. No T/T genotype was observed in this study although this SNP has been reported to be associated with LP in other populations.

Conclusion: This study suggested that association of the G to A variant at 22810 site of MCM6 gene promoter region with LNP is common in most populations including Malaysian. Conversely, the CC-13910 genotype did not appear to be generally associated with LNP in Malaysia, indicating that this variant is not suitable to be served as a biomarker for LNP in Malaysian.

PM43

The take-home dermal exposure of respiratory sensitisers

Siti Marwanis Anua, Sean Semple, Graham Devereux, Nara Tagiyeva, Finlay Dick

Background: This study investigates whether workplace contamination with respiratory sensitisers such as laboratory animal allergens, flour and enzymes is transported from work to the home environment.

Methods: 3 laboratory animal facilities, 92 bakeries, and 2 hospitals in the Grampian region of Scotland were invited to take part. Control subjects were recruited from staff and students at the University of Aberdeen. Take-home exposure assessment was carried out using two techniques: surface wipe sampling and vacuum sampling in workplaces, cars and homes. Samples were also collected in the homes of control subjects.

Results: Evidence of take-home exposure was found for bakery workers, with potential contamination that could lead to home exposure in the hospital workers. Higher levels of *Mus m 1* contamination were detected on house door handles of non-exposed controls compared to the exposed laboratory workers (0.62 vs. 0.1 ng/wipe, $p < 0.001$). There was detectable WFA and FAA found on the hands, forehead, shoes, cars and homes of bakers. Compared to controls, bakers had higher median levels of WFA and FAA in house vacuum samples; the difference was statistically significant for WFA/total protein (516×10^{-6} vs. 164×10^{-6} , $p = 0.031$), FAA/total protein ratios (1.45×10^{-6} vs. 0.04×10^{-6} , $p < 0.001$) and FAA loading (1.2 pg/cm^2 vs. 0.1 pg/cm^2 , $p < 0.001$). Hand wipes of hospital workers during mid-shift and post-shift showed evidence of proteolytic activity, indicating possible spread of contamination from hands, unsatisfactory hygiene practices and the potential for take-home contamination of enzyme. Presence of contamination on footwear indicated that possible transfer of enzyme to other places including homes may occur.

Conclusion: Further work is needed to ascertain how widespread the take-home of respiratory sensitisers may be and the possible implications to the health of workers' families and the wider community.

PM44

Patient Satisfaction With Health Care Delivery System Among Patients With Type 2 Diabetes Mellitus

Siti Nabihah Mohamed Hatta, Norul Badriah Hassan

Background: patient satisfaction with health care delivery system and related outcomes are important indicators of service quality from the consumers' perspective.

Objective: to measure level of satisfactions with healthcare delivery system and their correlations with HbA1c and fasting blood glucose among patients with type 2 diabetes mellitus.

Study design: patients from Diabetic Clinic and Klinik Rawatan Keluarga, Hospital Universiti Sains Malaysia were screened for this study from June to August 2012. Patients were self-administered a validated 25-item Patient Satisfaction with Health Care Questionnaire. This four-domain questionnaire was scored using a 5-point Likert scale from 1 (very dissatisfied) to 5 (very satisfied). Data were analyzed with pearson and spearman's rho correlations using PASW software version 20.

Result: A total of 152 patients were selected for this study. Majority of the patients were satisfied with the healthcare delivery system in HUSM except on time take to see their doctors (mean score: 1.73, SD: 0.763) and time taken at the pharmacy (mean score: 2.13: (SD: 0.819). This study also found that overall satisfaction, satisfaction with doctor service, and satisfaction with pharmacy service were significantly correlated with HbA1c and fasting blood glucose.

Conclusion: Majority of the patients were satisfied with the HUSM healthcare delivery system. This study indicates that patient satisfaction plays significant role in the management and control of diabetes mellitus. Improvement is certainly needed to shorten patients' waiting time to enhance satisfaction and thus quality with the HUSM health care delivery system.

Endodontic-periodontal lesions: Case series and a new proposed classification

Hany Mohamed Aly Ahmed

Introduction: The complexity of endodontic-periodontal (endo-perio) lesions reflects the relevance of a close developmental relation between the pulp and periodontal tissues. This pathological diversity is always accompanied with challenging diagnostic landmarks that require special attention from dental practitioners to provide the best treatment outcomes for the patient. In this report, a case series comprising different pathological patterns of endo-perio lesions are presented, and a new classification for endo-perio lesions is proposed.

Case series: The first case represents a mandibular second molar with a severe periodontal affection. After extraction, a deep lingual radicular groove was identified. Scanning electron microscope (SEM) analysis of the groove area revealed multiple accessory canals, and some intermittent invaginations have also been identified. The second case describes unusual pathological pattern of pulpal lesions with subsequent periodontal involvement. The third case demonstrates an endo-perio lesion with indefinite etiological factors. Apart from that, a comprehensive review on the literature was undertaken on all previous classifications of endo-perio lesions. A thorough analysis was performed and the missing patterns of endo-perio lesions were identified, and then described in a proposed new classification.

Conclusion: The new proposed classification for endo-perio lesions provides a systematic identification of the various aetiological factors and pathological patterns in clear and separate classes. This comprehensive analysis would aid in proper clinical assessment and selection of the most appropriate treatment approach. In addition, defining iatrogenic endo-perio lesions in a separate class would help dental practitioners to be aware of procedural errors that would increase the medico-legal risk.

PM46

Validation of migraine disability assessment (MIDAS) Questionnaire in a population-based sample in Kota Bharu, Kelantan

Munvar Miya Shaik, Norul Badriah Hassan, Huay Lin Tan, Shalini Bhaskar, Siew Hua Gan

Objective: This study was designed to investigate the test-retest reliability, internal consistency and validity of a Malaysian language translated version of the Migraine Disability Assessment (MIDAS).

Background: Previous studies have demonstrated that the English version of MIDAS as reliable and valid instrument for the assessment of migraine related disability.

Methods: Study participants were recruited from the patient population attending the Specialised Medical Clinic of Hospital Universiti Sains Malaysia. Participants were eligible for study entry if they were diagnosed with migraine for more than six months. A standard translation procedure was used to translate and adapt the questionnaire into the Malaysian language, which was then tested on 30 Malaysian migraine patients (first compilation) and retested after 21 days later (second compilation).

Results: Patients between the ages of 18-70 years were recruited (29 women and 1 men). The majority of the patients (46.7%) were of MIDAS grade IV (severe disability), 36.7% were of MIDAS grade III (moderate disability) and 16.7% were of MIDAS grades I or II (minimal, mild or infrequent disability). Cronbach's alpha was 0.673 at the first compilation and 0.68 at the second compilation. The test-retest Spearman correlation for the five disability questions was 0.661, the questions on average pain intensity was 0.865 and headache frequency was 0.976 ($p < 0.007$). The test-retest Spearman correlation coefficient for the total MIDAS score was 0.741 ($p < 0.002$) indicating that MIDAS questionnaire is reliable and valid and could be used in the clinical setting for the diagnosis of migraine.

Conclusion: Malaysian language translated version of MIDAS questionnaire is comparable with the English language version for its reliability and validity and can be used for the assessment of migraine in clinical settings.

PM48

Assessment of procalcitonin levels in pulmonary tuberculosis

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Introduction: Mycobacterium tuberculosis is one of the leading causes of mortality due to infection. Procalcitonin (PCT), the prohormone of calcitonin, rises in serum response to bacterial infections. Circulating PCT levels decrease when the infection is controlled by the host immune system or antibiotic therapy.

Objective: The aim of the present study was to evaluate the levels of procalcitonin in pulmonary tuberculosis (PTB) patients and its utility as diagnostic and prognostic marker in tuberculosis.

Methods: This retrospective study consisted of forty patients grouped as PTB-0, PTB-2 and PTB-6 (before and after 2 and 6 months of treatment respectively). Age- and sex-matched healthy volunteers (n=40) were used for comparison. The blood samples collected from the subjects were semi quantitatively analyzed for procalcitonin using PCT-Q kit (B.R.A.H.M.S. Diagnostica GmbH, Berlin Germany).

Results: The prohormone level was significantly high ($p < 0.001$) in the PTB-0 subjects when compared to normal subjects, thus indicating that PCT levels may be a useful marker of infection in PTB patients at diagnosis. After 2 months of intensive treatment the level of PCT level was significantly high ($p < 0.001$) in patients than that of normal subjects. At the end of 6 months of treatment, PCT values in all patients were significantly low ($p < 0.001$) when compared to PTB-0 and PTB-2 patients.

Conclusion: Serum PCT showed good diagnostic utility in tuberculosis and good prognostic utility at the end of treatment but not during the intensive phase of treatment.

PM49

Loading factor analysis of the QOLLI-F questionnaire to assess quality of life (QOL) in caregivers of cancer patients

Rafi Mahmoud Hindi Alnjadat, Wan Aasim Wan Adnan and Zalina Ismail

Background: Family caregivers could fulfil a necessary and valued role in society in addressing the caregiving and patients needs. Assessment tool taht addresses all quality of life domains is needed.

Aim: The objective of the present study was to assess the validity and reliability of Malay version of the QOLLI-F questionnaire.

Methods: A total of 80 Malay caregivers of cancer patients in an outpatient oncology clinic were enrolled in this study. A translated QOLLI-F questionnaire of 16 items was used in order to assess their quality of life. Demographic characteristics were recorded. Both face and content validity of the translated version were carried out by professionals and the construct validity of the questionnaire was assessed by exploratory factor analysis.

Results: Exploratory factor analysis led to the extraction of seven factors and this was consistent with the English version. Cronbach Alpha coefficient showed good consistency of the questions within the sub-scales (Cronbach's alpha > 0.7).

Conclusion: This study was confined to a Malay population, and the analyses were potentially limited by a small sample size .Nevertheless, the translated questionnaire demonstrated valid and reliable psychometric properties when administered to Malay caregivers. Future studies are needed to see if this instrument can fit other samples in different settings and populations.

PM50

Measuring unplanned hospital readmission rate as an indicator to set benchmarking of hospital readmission rate

AR Abd. Aziz, MB Nishazini, Yogeswary

Introduction: Any admission to the same hospital occurring within seven, 14 or 30 days after discharge from the initial visit can be defined as readmission. The standard benchmark used by the Centers for Medicare & Medical Services (CMS) is the 30-days readmission rate. Rate at the 80th percentile or lower are considered optimal by CMS.

Objectives: To set the benchmarking rate of unplanned readmission because high readmission rate have long been considered as a marker of lower quality care and to establish strategies to reduce the unplanned readmission rate.

Methodology: Retrospective study conducted through data collection from January 2012 to March 2012.

Results: Total inpatients in January 2012 were 1313 with 48 readmissions. However, only 11 cases of unplanned readmission which is 23% of the total readmission and 0.83% of total inpatients. Five cases were readmitted within 14 days and only 1 case readmitted within 15 to 30 days. For February 2012, total readmissions were 64 including new born. Numbers of unexpected readmissions were 7 cases where 3 cases were readmitted with 7 days and 4 cases readmitted within 14 days. No cases readmitted within 15 to 30 days. It shows that the percentage of unplanned readmission in February had decreased by 12% compared to the previous month. Percentage of unplanned readmission of total inpatients (1329) in February was 0.5%. Total readmissions as for March 2012 were 60 including new born. Numbers of unexpected readmissions were 7 cases where 5 cases were readmitted within 7 days and 2 cases readmitted within 14 days. No cases readmitted within 15 to 30 days. Percentage of readmission from the total inpatients(1379) in March was 12% and only 0.5% was unplanned readmission. The highest cases for unplanned readmission were due to Bronchopneumonia(10 cases), followed by post-operative bleeding (3 cases), uncontrolled DM and uncontrolled Hypertension (both 2 cases), and one case each for Celulitis, infected Diabetic foot, Uteric Colic, IOL, Anal fistula, Pyelonephritis, viral fever, Abdominal Colic.

Conclusion: Data collected from January to March 2012, had shown that the unplanned readmission rate for KPJ Seremban was lower than the benchmark of 17.6% reported by Medicare Payment Advisory Commission (MedPAC) in 2005. Most of the unplanned readmissions at KPJ Seremban were due to Bronchopneumonia. Data collection helps KPJ Seremban to establish strategies in reducing risk by implementing quality improvement programs such as paediatric asthma patients who received relievers during this hospitalization and developing clinical pathway management of Pneumonia for children. Reducing the unplanned readmission will reduce the cost of hospitalization. A closer understanding of reasons for readmission is therefore necessary to reduce unplanned readmission, identify patients who may be at high risk of readmission and future planning to optimize resources available. This study had enable KPJ Seremban Specialist Hospital to know the rate of unplanned readmission by comparing with the international benchmarking standard. By doing this the management will have some guidance on the standard of care delivered by this hospital. Readmission rates can help to monitor the success in preventing, or reducing, unplanned readmissions to hospital.

PB1

Proliferation study of royal jelly as an alternative to fetal bovine serum in cell culture using human lung fibroblasts

Marahaini Musa, Thirumulu Ponnuraj Kannan

Introduction: Royal jelly has the potential to replace the fetal bovine serum (FBS) that is widely used in cell culture as it contains remarkable amounts of essential elements like proteins. **Objective:** To evaluate royal jelly as a substitute to FBS in cell culture using MTT assay, Alamar Blue assay and live cell imaging on human lung fibroblast cell line (MRC-5). **Methods:** MTT assay was performed with various concentrations of royal jelly on MRC-5 cells. Negative and positive control groups comprised of Alpha-Minimal Essential Medium (α -MEM) alone and α -MEM with 10% fetal bovine serum respectively. The cell proliferation was studied using Alamar Blue assay over the period of 10 days and live cell imaging for 24 hours employing fluorescent expression systems. The population doubling time (PDT) was determined using trypan blue assay following live cell imaging analysis. **Results:** In MTT assay, royal jelly groups (0.156 and 0.078 mg/ml) produced higher cell viability compared to positive control group but were not significantly different ($p>0.05$). These concentrations were selected for Alamar Blue assay and live cell imaging. In the Alamar Blue assay, royal jelly groups produced greater percentage of reduction at Day 3 even though no significant difference was found ($p>0.05$). The PDT for positive, negative, 0.156 and 0.078 mg/ml of royal jelly groups were 29.09, 62.50, 41.67 and 41.67 hours respectively. PDT between all the groups was also not significant ($p>0.05$). **Conclusion:** Under the present test conditions, royal jelly does not exhibit similar ability like FBS to facilitate cell growth.

PB2

Effects of the mGluR5 antagonist MPEP on expression of mGluR5 protein during ethanol withdrawal in rats

Jaya Kumar.M, Hermizi H., Yvonne-Tee Get Bee, I, Zalina

Introduction: Alcohol withdrawal syndrome refers to symptoms that may appear when an individual reduces or stops alcohol consumption after a prolonged period of excessive drinking. These symptoms are mainly caused by hyperexcitability of the central nervous system. A number of studies have reported the role of amygdala and the effect of inhibition of mGluR5 receptors in reinforcing properties of ethanol including the ethanol seeking and relapse like behaviors. **Objective:** This present study investigates the effects of mGluR5 antagonist 2-methyl-6-(phenylethynyl)-pyridine (MPEP) on changes in expression of mGluR5 protein in rat amygdala during ethanol withdrawal. **Methods:** 48 Male Wistar rats were fed with a Modified Liquid Diet containing low fat cow's milk, sucrose, maltodextrin, and vitamin A with gradual introduction of 2.4%, 4.8% and 7.2% ethanol for 20 days. During the period of alcohol withdrawal, rats were treated intraperitoneally with normal saline, alcohol (2.5g/kg, 20% w/v), MPEP (2.5, 5, 10, 20, 30mg/kg) at 6-7 hours into withdrawal. Rats were sacrificed by decapitation an hour following the injection and the expression of mGluR5 protein was studied using Western Blot Analysis. **Results:** A significant increase in expression of mGluR5 protein was noticed following 20 days of chronic ethanol administration. Administration of MPEP and ethanol reduced the expression of mGluR5 in rat amygdala without any statistical significance. **Conclusion:** Despite the statistical insignificance, MPEP reduced the expression of mGluR5 protein level in rat amygdala and thus the pharmacological effect of this drug on glutamatergic system should be further explored.

PB3

Reduction of aortic tissue expression of adhesion molecule markers in high cholestreol induced mild atherosclerotic rabbits treated with pure tocotrienols

Hassim E, Zulkafli N, Rahman T, Kaslina MK, Nawawi H

Background: Several clinical trials on vitamin E supplementation in the prevention of coronary artery disease (CAD) have shown mixed reports. This could be due to the presence of alpha tocopherol which attenuates the atheroprotective properties of pure tocotrienols (TCT). To date, there have been few studies determining the potential atheroprotective effects of pure TCT. **Objective:** To determine the effects of pure delta (90%) and gamma (10%) TCT on tissue markers of endothelial activation in high cholesterol induced mild atherosclerotic rabbit model. **Methods:** Fifteen New Zealand white rabbits were divided into three intervention arms: TCT 4 mg/kg/D (TCT-4), 15 mg/kg/D (TCT-15) and placebo. Intervention was done following 2 weeks 1% high cholesterol diet (HCD). Entire lengths of rabbit aorta were obtained at the end of the study and analysed for atherosclerotic lesions and tissue expression of adhesion molecules by immunohistochemistry. **Results:** The aorta of TCT-4 and TCT-15 intervention groups showed little atheromatous plaque formation while placebo showed extensive atheromatous plaque. This result complimentary with immunohisto findings. Representative sections of the aorta were taken and submitted for endothelial activation marker expression i.e. E-selectin and VCAM-1. E-selectin was reduced in TCT-15 intervention group compared to placebo (mean±SEM: 10.3 ± 0.54 vs. 59.8 ± 8.5 $p < 0.001$). VCAM-1 was reduced in TCT-4 and TCT-15 intervention groups compared to placebo [(mean±SEM: (0.24 ± 0.05 vs. 29.5 ± 8.3) % $p < 0.001$, (7.44 ± 3.03 vs. 29.5 ± 8.3) % $p < 0.01$) respectively]. **Conclusion:** This study suggests TCT's potential role in the reduction of biomarkers of endothelial activation in mild atherosclerosis, making its use as an adjunct therapy to standard treatment regimes for atherosclerosis a strong possibility.

PB4

Palm tocopherol-tocotrienol mixed fraction supplementation in treatment of mild atherosclerosis reduces vascular inflammation

Aishah N.M., Omar E., Nawawi H.

Introduction: Inflammation plays a central role in atherogenesis. Palm derived tocopherol-tocotrienol mixed fraction (TTMF) is potent anti-inflammatory agent. *In vivo* effect of TTMF supplementation on atherogenesis remains uninvestigated. **Objective:** To determine the anti-inflammatory and anti-atherogenic effects of TTMF supplementation in hypercholesterolemic-induced rabbits. **Methods:** 10 New Zealand white rabbits were fed 1% high cholesterol diet (HCD) for 2 weeks, followed by normal diet for another 8 weeks. They were randomized at the end of HCD supplementation, into two treatment groups: (i) TTMF (15mg/kg; tocotrienol: tocopherol ratio = 70: 30 %) and (ii) placebo. At the end of the study the rabbits were euthanized, the aorta were dissected and analysed for atherosclerotic lesions by Sudan IV staining. Tissue expressions of inflammatory markers (NFκB, IL-6, CRP, ICAM-1, VCAM-1, E-selectin, SMA and MMP-12) were evaluated using immunohistochemistry. **Results:** There was no difference in the quantity of atherosclerotic lesions seen in both groups. However, aortic intimal tissue CRP (3.01 ± 0.86 vs. $25.51 \pm 10.85\%$; $p < 0.05$), SMA (3.91 ± 1.33 vs. $16.19 \pm 4.08\%$; $p < 0.05$) and MMP-12 (1.81 ± 0.34 vs. $10.07 \pm 3.29\%$; $p < 0.05$) expression showed reduction in the TTMF treated group compared to placebo. In addition, there was a trend of greater reduction in IL-6, NFκB, E-selectin, ICAM-1 and VCAM-1 in TTMF compared to placebo groups ($p > 0.05$). **Conclusion:** TTMF supplementation reduces vascular inflammation as well as smooth muscle and tissue metalloproteinase expression in early atherosclerosis induced by HCD in rabbits. This indicates that TTMF is a potential immune-modulating agent for the amelioration of atherogenesis.

PB5

**HLA-A Allele Frequency In The Senoi Orang Asli Sub-population Of Peninsular
Malaysia**

Tasnim AR, Zafarina Z, Panneerchelvam S, Norazmi MN

Human Leukocyte Antigen (HLA) loci are highly polymorphic genes in humans. According to the latest IMGT/HLA Database (April 2013), there are 2244 alleles in HLA-A locus. In this study, sequenced based typing (SBT) of HLA-A locus was performed on the Senoi Orang Asli sub-population in Peninsular Malaysia to determine the HLA polymorphism and the distribution of HLA-A alleles among the population. A total of 24 unrelated and healthy Senoi individuals were typed. Each participant was interviewed to obtain their consent and ancestral information. Their ancestry should comprise at least three generations of the same population without mixed marriages. A total of 3 ml of whole blood was collected. DNA was extracted using GeneAid® Exgene™ Blood SV Mini Kit. All samples were typed using the SeCore® HLA-A Locus Sequencing Kits. The uTYPE® 6.0 HLA sequence analysis software was used for HLA allele assignment by comparison to the IMGT/HLA database. Allele frequency was estimated using the Arlequin version 3.1 and principal coordinate analysis (PCO) was performed using the MVSP version 3.1. The most frequent allele was HLA-A*24:07 (37.5%) and the lowest distributed alleles was HLA-A*23:01 (2.1%). A rare allele, HLA-A*02:264 was detected in this study. PCO based on high resolution of HLA-A allele frequencies showed that the Senoi Orang Asli group is closest to Southeast Asian populations. These preliminary finding provides useful information on the genetic relationships among different populations. We are currently studying other sub-populations of the Orang Asli to determine genetic similarities and differences among them as well as comparing these sub-populations with other populations within the region.

**GCMS Analysis Of Chemical Compounds Of *Apis Mellifera* Propolis Collected From
Acacia Mangium Apiary**

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Introduction: Propolis from different regions displays different chemical composition due to different plant sources. In Malaysia, *Acacia mangium* is one of the plant species currently used for bee keeping. However, chemical compound of propolis obtained from this plant source is still unknown. **Objective:** The purpose of the present study was to determine the chemical compounds of *Apis mellifera* propolis collected from *Acacia mangium* apiary in Kota Tinggi, Johor. **Method:** Derivatized ethanolic and water extracts of propolis were analysed using Hewlett Packard 5890 series Gas Chromatograph with 5973N Mass Selective Detector and Chemstation Data System. **Results:** A total of 50 chemical compounds were identified; 28 chemicals from the ethanol and 22 from the water extracts of propolis. Seven similar compounds were obtained from both extracts (hexadecanoic acid, oleic acid, docosanoic acid, gallic acid, caffeic acid, d-galactose and glycerol). From the ethanolic extract, typical propolis compounds such as fatty acids, phenolic acids, sugars and terpenoids were obtained. Three new compounds (docosanoic acid, threo-2,5-hexodiulose and bulnesol) were also identified. As for the water extract, main compounds identified were phenolic acids, fatty acids and sugars. Five new compounds detected were Docosanoic acid, 3-Hydroxybenzoic acid, 3,4,5-trihydroxy- 1-cyclohexene-1-carboxylic acid, benzenepropanoic acid, 4-hydroxy,3-methoxy and D-ribose. **Conclusion:** *Apis mellifera* propolis collected from *Acacia mangium* has valuable chemical compounds. However, further research is warranted to investigate the biological activity of the new compounds detected.

PB7

**Changes In Body Composition With Twelve Weeks Of Light Resistance Training
Using Either Dumbbells Or Ankle-Wrist Weights**

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Introduction: Obesity is a major risk factor for various chronic diseases. Resistance training and aerobic exercises represent two different therapeutic tools for obesity prevention and treatment. **Objective:** This study was conducted to investigate the changes in body composition with twelve weeks of light resistance training using either dumbbells or ankle-wrist weights in overweight and obese adults. **Methods:** A parallel group randomized controlled study was conducted in Tumpat Kelantan where 138 adult were randomized into one of these two light resistances training groups; using dumbbells (DB) and, using ankle-wrist weights (AW). The first group of subjects performed group exercises using a pair of 1 kg dumbbells for 20 minutes, three times per week. The second group of subjects were given a pair of 0.5 kg ankle weight and a pair of 0.5 kg wrist weight, used for at least 20 minutes per day, 3 times per week during activities of daily living. Body mass index (BMI), waist circumference (WC), waist to hip ratio (WHR), body fat percentage (BF%) and skeletal muscle percentage (SM%) were measured at baseline, at the end of 6th and 12th weeks. Repeated measures analysis of variance were used to determine changes of above parameters. **Results:** Eighty nine subjects completed this 12 weeks intervention. Subjects in dumbbell group showed reduction in BMI at week 6 (mean differences=0.23, 95% CI: 0.05, 0.42; p=0.007). These changes however could not be maintained until the end of month 3. No significant changes in BMI were observed for ankle-wrist weight group. From baseline to week 6, both groups showed significant reduction in WC (DB: mean difference=4.30, 95% CI: 2.42, 6.18; p<0.001, AW: mean difference=3.49, 95% CI: 2.50, 4.48; p<0.001), WHR (DB: mean difference=0.025, 95% CI: 0.006, 0.043; p=0.004, AW: mean difference=0.016, 95% CI: 0.006, 0.025; p<0.001) and BF% (DB: mean difference=0.85, 95% CI: 0.40, 1.30, p<0.001, AW: mean difference=0.79, 95% CI: 0.46, 1.12; p<0.001) with significant increase in SM% (DB: mean difference= -0.43, 95% CI: -0.78, -0.08, p=0.007, AW: mean difference= -0.46, 95% CI: -0.46, 0.28, p<0.001). WC, WHR, BF% and SM% at month 3 were not significantly different from week 6 but the significant changes from baseline were maintained. Effect of intervention between groups, neither with regard nor regardless of time does not differ. **Conclusion:** Both method of light resistance training using either dumbbells or ankle-wrist weights results in improvement in body composition as early as six weeks of training. This method of resistance training could therefore be recommended for obesity prevention and treatment.

The development of Dengue Virus NS2B/NS3 Protease Inhibition Assay for Lead Compound Optimization in Drug Discovery Process

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Dengue is an endemic infectious disease throughout the world especially tropical and subtropical regions. Dengue viral infections can cause dengue fever, life-threatening dengue hemorrhagic fever (DHF) or dengue shock syndromes. To date, there is no approved commercial vaccine or therapeutic treatment to treat dengue viral infections. NS2B/NS3 protease complex, a dengue polyprotein, is known to be essential in cleavage during replication of dengue virus. Therefore, it is considered as a target to develop anti-dengue drugs. In this study, a NS2B/NS3 protease inhibition assay was developed using AlphaScreen™ technology, a bead-based proximity assay utilizing streptavidin-coated donor beads and anti-FITC conjugated acceptor beads. A known NS2B/NS3 peptide substrate was synthesized with biotin tagged to N-terminal and FITC tagged to C-terminal of the peptide. This peptide will bind to both AlphaScreen™ donor and acceptor beads. A close proximity of the beads will result in high fluorescence signal when illuminated with laser light at excitation wavelength of 680 nm. Active NS2B/NS3 protease enzyme will cleave the peptide substrate and produce low fluorescence signal. The optimization of the assay was carried out in 96 half-area well plate for both enzyme and peptide substrate concentrations. Aprotinin, an active serine-protease inhibitor, as a positive control in this assay produces a dose-response increment of fluorescence signal, indicating that the assay is functional.

PB9

In Vitro Comparative Coagulation Studies of Novel Biodegradable N,O-Carboxymethylchitosan (NO-CMC) and Oligo-Chitosan (O-C)

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Background: Chitosan is a natural polysaccharide and has broad range of applications as biodegradable material especially towards coagulations. **Objective:** To study the comparative hemostatic capabilities of biodegradable NO-CMC and O-C *in vitro*. **Methodology:** Chitosans [NO-CMC-7%, (+0.45mL collagen), NO-CMC-8%, O-C(1 hour), O-C-53], weighing 10mg were utilized. Degradation ability of chitosans was measured by soaking in PBS (0-30 days) and lysozyme (0-14 days). Weight loss of each chitosan recorded. Blood was withdrawn from antecubital veins of healthy donors and collected in vials containing 3.8% sodium citrate. Blood coagulation test was performed (0-30 minutes) and STA Compact Coagulation Analyzer used to measure the coagulation profiles [Activated Partial Thromboplastin Time (APTT), Prothrombin Time (PT), Fibrinogen (Fib)]. Effects on the blood platelets were assessed through Scanning Electron Microscope (SEM). All experiments were done in six replicates. **Results:** Rapid weight loss was observed in PBS for all the chitosans until the 6th day then the weight was remained constant. NO-CMCs were completely degraded by lysozyme by day 12 in comparison to the positive control (lyostypt) ($p < 0.05$). Highly deacetylated chitosans (O-C) were noticed to degrade slowly. Upon macroscopic observations, NO-CMCs were able to promote erythrocyte aggregations within 10 minutes. NO-CMC-7% recorded [PT (13.62±0.40 sec), APTT (40.50±2.97 sec), Fib (5.45±6.62 g/L)], and showed the ability to clot within the needed time frame compared to the blood sample alone [PT (14.35±1.15 sec), APTT (42.38±5.79 sec), Fib (3.15±0.75 g/L)]. SEM analysis showed that the platelets adhered to one another, clumping into irregular shapes and elongated pseudopod forms. NO-CMC-7% promoted more platelet aggregations on the surface of the membrane layer, approaching 80% coverage. **Conclusion:** NO-CMC-7% was the best chitosan tested since it biodegrades faster, promotes coagulations and expedites the hemostatic process.

PB10

The mRNA expression of PPARalpha in pioglitazone-treated MDA-MB-231 cells

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Introduction: Peroxisome proliferator-activated receptor alpha (PPAR α) is a transcription factor regulates the lipid metabolism. Previous studies showed the involvement of PPAR α in growth inhibitory effect of arachidonic acid on breast cancer cells. However, the expression of PPAR α in MDA-MB-231 treated with pioglitazone has never been elucidated previously. **Objective:** The present study determined the mRNA expression of PPAR α in MDA-MB-231 treated with pioglitazone using real-time PCR. **Methods:** The viability of MDA-MB-231 treated with different concentrations of pioglitazone was first evaluated using trypan blue assay. The MDA-MB 231 was then treated with 30 μ M of pioglitazone for 2, 4 and 6 days, and the total RNAs were extracted from the pioglitazone-treated MDA-MB-231. The total RNAs were reverse transcribed to cDNAs, and the cDNAs were used to determine the mRNA expressions of PPAR α and other program cell death related gene expressions using real-time PCR. MK886 which cause potent MDA-MB-231 cell death was used as a positive control in this study. **Results:** Although pioglitazone showed little biologic effect on MDA-MB-231, the cell death was likely associated with increased mRNA expression of PPAR α , and reduced mRNA expression of Ki67. Consistently, 10 μ M of MK886 which caused potent inhibitory effect on MDA-MB-231 growth induced elevated level of PPAR α mRNA, was also followed by reduced mRNA expression of Ki67. However, no change on the mRNA expressions of caspase-3 and caspase-9 were observed in the pioglitazone-treated MDA-MB-231. The real-time PCR results showed also increased expression of other program cell death related gene mRNAs. HIF1 α and ALPI were among the genes up-regulated in the MDA-MB-231 post pioglitazone treatment. **Conclusion:** Our study may provide preliminary information of PPAR α mRNA expression in MDA-MB-231 where the PPAR α may be an attractive target for proliferation of human breast cancers as well as for other malignancies.

PB11

Honey Supplementation Improves Erythrocyte Antioxidant Enzyme Activities among Chronic Smokers

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Introduction: Elevated oxidative stress in smokers has been proposed as one of the mechanisms for smoking-related cardiovascular disease. However, the possible beneficial effect of honey that has antioxidant property in modulating antioxidant enzyme activities among chronic smokers has not yet been reported. **Objective:** The aim of the study was to determine the effect of 12-week Tualang Honey supplementation on erythrocyte antioxidant activities among chronic smokers. **Methods:** A total of 36 non-smokers and 36 chronic smokers were randomly recruited from volunteers or patients from Quit Smoking Clinic, Universiti Sains Malaysia (USM) Hospital and Health Campus USM staff with written consent. Chronic smokers were given honey supplementation (20 g/day) for 12 weeks. Blood was obtained for determination of erythrocyte superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPx) activities from both groups at pre-intervention and from chronic smokers at post-intervention. Independent t-test was used to analyze the difference of pre-intervention antioxidant enzyme activities between chronic smokers and non-smokers. Paired t-test to analyse the difference between pre and post-intervention antioxidant enzyme activities in chronic smokers and significance level was accepted at $p < 0.05$. **Results:** At pre-intervention, chronic smokers had significantly lower SOD and higher CAT activities than in non-smokers. In chronic smokers, the activities of CAT and GPx were significantly higher at post-intervention than at pre-intervention. However, there was no significant difference for SOD activity. **Conclusion:** Honey supplementation improves the altered erythrocyte antioxidant enzyme activities in chronic smokers which in turn may reduce the oxidative stress and subsequent risk of cardiovascular diseases.

PB12

Novel CG loci in MTHFR may predispose to ischemic stroke among Malaysians

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Ischemic stroke results from exposure to genotoxic stressors and may involve epigenetic reprogramming. Differential DNA methylation can provide novel biological insights that may contribute to the understanding of ischemic stroke. In this study, DNA for case (n=149) and control (n=49) samples among Malaysian subjects were obtained from peripheral blood leukocytes before bisulfite-pyrosequencing analysis. Based on a previous computational biology research, twenty CG loci were selected from an alternative promoter region of the *MTHFR* gene. A high percentage (62.5%; $p < 0.001$) of CG loci were found to be significantly associated with ischemic stroke. In addition to their correlations to the demographic characteristics, positive and inverse intra- and inter-relationship among the CG loci were also observed. Conditional stepwise logistics regression indicated that some CG loci are protective (25%) while some (20%) increase the risk for ischemic stroke. All CG loci were further explored using an *in silico* analysis for confirmation. Our findings indicate that novel CG loci may predispose to ischemic stroke among Malaysians.

PB13

QuantiFERON TB Gold In-Tube performance for diagnosing active and latent Tuberculosis in Malaysian population

Liyana Azmi, Aziah Ismail, Norazmi Mohd Nor

Halting the progression of active tuberculosis (TB) involves the detection of TB from a latent stage. Currently, in-vitro interferon-gamma assays (IGRAs) are being used to detect for active TB as well as latent TB besides Tuberculin Skin Test (TST). One of IGRA used to diagnose for LTBI is the QuantiFERON-TB (QFT) Gold which measures the levels of interferon gamma stimulated by QFT peptides (CFP-10, ESAT 6 and TB7.7) in patient plasma. However, the information regarding the performance of this kit especially in Malaysian population is limited. Therefore this study aims to test for the sensitivity and specificity for the QFT kit in Malaysian population. Whole blood samples were collected from 37 confirmed TB patients, 30 high-risk TB individuals (healthy contacts) and 16 BCG vaccinated low-risk TB individuals (non-TB) and stimulated with TB antigens prior to ELISA for QFT. Specificity and sensitivity of the QFT was analysed based on known TB patients and non-TB individuals. The specificity of QFT was determined as 87.5% among low-risk patients and the sensitivity of QFT for Malaysian population was 78.38% among confirmed TB patients. Meanwhile, the percentage of positivity for latent TB detected among high-risk TB patients was 36.67%. Our study showed comparable results to the studies conducted at other neighbouring regions such as Singapore and India. Our findings revealed that the QFT is also suitable to be used as a diagnostic kit for the detection of TB and latent TB.

PB14

Heparin- induced thrombocytopenia in different anticoagulants in Acute Coronary Syndrome patients

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Introduction: Unfractionated heparin (UFH) or low-molecular-weight heparin (LMWH), is a mainstay treatment in Acute Coronary syndrome (ACS) which have an important adverse reaction, Heparin-induced thrombocytopenia (HIT). It can lead catastrophic consequences if overlooked or misdiagnosed. It is defined as more than 50% reduction in platelet counts or an absolute platelet count of less $100 \times 10^9/L$ during and after heparin therapy and positive test for heparin-dependent antibodies. **Methodology:** ACS patients treated with unfractionated heparin were prospectively enrolled. Platelet count were measured at baseline, at day 5 and at 1 month post treatment, while anti- PF4/Heparin antibodies were measured at day 5 and at 1 month post heparin treatment . All patients were follow-up for 3 months for the end-point outcomes. **Results:** A total of 6 out of 63 (9.5%) UFH treated ACS patients noted to have antibodies positivity detected at 1 month follow-up. None of ACS patients from LMWH and Fondaparinux group have heparin antibodies positivity. **Conclusion:** Incidence of heparin dependent antibodies among ACS patients treated with UFH noted to be higher as compared to Fondaparinux and LMWH treated patients. However no significant difference in endpoint thrombotic outcomes between heparin positive and negative group of ACS patients, treated with various anti-coagulant drugs.

PB15

Preliminary evaluation of the hypoglycaemic effects of *Cordyceps sinensis* and its based product in streptozotocin-induced diabetic rats.

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Cordyceps sinensis (CS) is one of the most valued herbs in the traditional Chinese medicine which has broad applications in diabetes treatment. The popularity of CS is manifested by the emergence of many commercial products in the market including Esulin. This preliminary experiment was conducted to evaluate the potential antidiabetic activity of aqueous extract of CS and its based formulation (Esulin) in streptozotocin induced rats. Groups of diabetic rats were treated orally with distilled water (as control), C.S or Esulin at the similar concentrations of 75, 150 or 300 mg/kg/day or metformin (150 mg/kg/day) once daily for 28 days. Results obtained revealed that none of the rats died throughout the study. The body weight of animals treated with CS or Esulin seemed to be heavier than the control. Blood glucose levels were reduced in the herbal (CS or Esulin) treated rats and appeared comparable with those treated with metformin. Further, in all diabetic rats, the water intake was high while the food ingestion was decreased as a common manifestation of diabetes mellitus. This pilot study might imply that CS and Esulin could be utilised in the management of diabetes. Comprehensive study is being planned to gather more detailed information.

PB16

Evaluation of Cytotoxicity and Mode of Cell Death in Jurkat T-Lymphoblastic Cells Treated with Organotin (IV) *N*-Butyl-*N*-Phenyldithiocarbamate Compounds

Nurul Farahana Kamaludin, Normah Awang, ³Ibrahim Baba, Asmah Hamid and Kok Meng Chan

Many studies on organotin (IV) compounds have been performed and most of them showed important characteristics of cancer chemotherapeutic agents. However, the cytotoxicity induced by organotin (IV) compounds differs from one another primarily due to their specific molecular structures. Therefore, this study was carried out to determine the cytotoxicity and the mode of cell death induced by novel organotin (IV) *N*-butyl-*N*-phenyldithiocarbamate compounds in Jurkat T lymphoblastic cell line. The cells were treated with a series of organotin (IV) compounds for 24 hours prior to assessment via 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. All compounds exhibited a strong cytotoxicity in Jurkat cells with IC₅₀ values were in the range of 0.4-0.13 μM. To further characterize their cytotoxic action, the cells were incubated for 24 hours upon treatment with the experimental compounds using the IC₅₀ concentrations. The treated cells were analyzed using flow cytometer with two fluorescent dyes (Annexin V-FITC and propidium iodide). Increased phosphatidylserine exposure demonstrated that all compounds induced Jurkat cells to die via apoptosis whereby the (*N*-butyl-*N*-phenyldithiocarbamate-κS) triphenyltin(IV) appears with the highest percentage of cell death quantified as apoptosis (84 %). In conclusion, this study indicates that the novel organotin (IV) *N*-butyl-*N*-phenyldithiocarbamate compounds displayed a strong cytotoxicity by triggering apoptosis in Jurkat T lymphoblastic cells.

Immunomodulatory Properties of Virgin Coconut Oil in Balb/c Mice

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Introduction: Coconut oil has been used for centuries as a cooking medium in many Asian countries. It has been reported that VCO is beneficial in lowering lipid levels and preventing the oxidation of LDL by physiological oxidants. **Objective:** This study is carried out to identify the immunomodulatory properties of VCO in Balb/C mice. **Methods:** Male Balb/c mice aged between 6-8 weeks were given daily oral dosage of 0.1 ml, 0.3 ml and 0.6 ml VCO. Pre-treatment and post-treatment weights were measured. Oral feeding was done continuously for 21 days and at the end of the study animals were sacrificed to collect spleen. Splenocytes obtained were surface-stained with monoclonal antibodies, namely CD3⁺ PerCP, CD4⁺ FITC, CD8⁺ PE, CD14⁺ FITC and CD 19⁺ FITC. Flow cytometry was performed using FACSCanto™ to identify lymphocyte cell subset distribution and population percentage. **Results:** T helper cells population (CD3/CD4) in mice treated with VCO increased in dose dependent manner while cytotoxic T cell population (CD3/CD8) decreased as the doses increased. B cell population (CD19) showed fluctuation with medium doses had the lowest percentage. In addition, percentage of monocyte (CD14) was higher than untreated group in mice treated with low dosage of VCO. However, as the doses increased, the monocyte population decreased. Proliferation analysis of splenocytes obtained from VCO-treated mice also showed an increment in dose dependent manner. **Conclusion:** The results indicated the oral administration of VCO on mice showed improved cell subsets percentage especially T helper cells population.

PB18

The Establishment of a Recombinant HEK293 Cell Line Expressing hERG Potassium Channels for Patch Clamp Assay

Teah Yi Fan, Tan Mei Lan

Introduction and Objective: Human ether-a-go-go-related gene (hERG) encodes a potassium channel responsible for rapid delayed rectifier potassium current, I_{Kr} . The blockade of hERG current by drugs can lead to delay in ventricular repolarisation of the heart. It is often indicated by prolongation of the QT interval on electrocardiogram (ECG). Excessive drug-induced QT prolongation may lead to potentially fatal cardiac arrhythmias. The present US FDA guidelines emphasize on *in vitro* I_{Kr} assay using heterologous system expressing hERG current to characterize the potency of hERG blockade to determine QT safety for drugs. Therefore, the aim of this study was to establish a stable HEK293 cell line expressing high levels of functional hERG channels to study electrophysiological properties of drug-induced hERG blockade. **Methods:** HEK293 cells were transfected with pCMV6-Neo-hERG clone using the electroporation method. Transfected cells were grown in increasing concentration of Geneticin[®] over time. Validation of stably transfected cells were carried out by determining the mRNA expression of hERG by using RT-qPCR and determining the hERG current by using the Port-A-Patch[®] electrophysiology system. **Results:** After three weeks, the transfected cells were found to be growing in complete medium containing 500 µg/mL of Geneticin[®]. Validation experiments using RT-qPCR revealed that hERG mRNA was expressed approximately 75-fold higher relative to the untransfected cells. The hERG current was found to be present in these cells as recorded using the Port-A-Patch[®] system, indicating that the heterogously expressed hERG channels were functional. **Conclusion:** Recombinant HEK293 cells stably expressing hERG potassium channel was successfully established. These cells can be utilized to determine the effects of drugs and compounds on the ability to block hERG current.

PB19

Immunomodulatory properties of *Pleurotus sajor-caju* (oyster mushroom) extract in Balb/C mice

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Introduction: *Pleurotus sajor-caju* (oyster mushroom) widely used in culinary are also acclaimed for their role in immune response. Besides their high protein value and amino acid rich content, they are traditionally believed to cure diabetes and many other ailments. It has also been scientifically proven as an effective anti-inflammatory agent. **Objective:** The aim of the study was to evaluate the immunomodulatory properties of *Pleurotus sajor-caju* (PSC) extract on BALB/cJ mice. **Methods:** Cultivated dried mushroom powder was used for water extraction, followed by lyophilisation into freeze dried form. The final form was suspended into carboxymethyl cellulose (CMC) and prepared into different groups with dose ranging 5mg, 25mg and 50mg of *P.sajor-caju* extract. Balb/C mice were orally fed daily for 21 consecutive days. Pre- and post-treatment weight was obtained. After sacrifice, splenocytes was obtained and surface stained with CD3⁺/CD4⁺, CD3/CD8, CD14⁺ and CD 19⁺ respectively and analyzed using FACSCanto™ to identify lymphocyte cell subsets population. **Results:** The mice administered with PSC extract showed increased populations of CD3/CD4, CD3/CD8, CD14 and CD19 when comparison made to untreated groups. Interestingly, populations of CD3/CD4, CD3/CD8, CD19 and CD14 in treated mice showed the highest subset populations when administered with 5 mg of PSC extract. Even though the stimulation of cell subset populations occurred in dose independent pattern; however the percentage of cell subsets increased in the PSC-treated groups. **Conclusion:** The results indicated the oral administration of PSC extract on mice showed improved cell subsets percentage when administered with optimal dosage of PSC extract.

PB20

Strongyloidiasis in asymptomatic solid-organ cancer patients: a case series

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Introduction: *Strongyloides stercoralis* is a soil-transmitted intestinal helminth that infects millions of people living in tropical and sub-tropical countries. Strongyloidiasis has been described as an occult infection in asymptomatic immunocompetent patients with solid-organ and haematological malignancies. The infection may result in reactivated strongyloides hyperinfection mimicking bacterial sepsis, which is often misreported as the primary cause of death. Due to the challenges in parasitological and molecular diagnosis of the infection, ELISA is often used as a screening tool for strongyloidiasis. **Method:** This report describes six cases of patients aged 38 to 64 years who had solid-organ cancer treated with chemotherapy with or without steroids. They were involved in a 10-month serological survey using ELISA for anti-*Strongyloides* IgG, IgG4 and IgE antibodies during and after the treatment regimes. The results were compared with stool direct microscopy and real-time PCR. **Results:** Seropositivity for anti-strongyloides IgG and/or IgG4 antibodies was seen in all six cases i.e. two were positive for IgG, two positive for IgG4 and the other two cases were positive for both antibodies. Male to female ratio was 1:1 and half of the cases had mild non-specific gastrointestinal symptoms and eosinophilia. Majority of cases were immunocompetent at the time of sampling. Stool microscopy and real time PCR were negative in all cases. **Conclusion:** These cases showed that a number of solid-organ cancer patients at HUSM were serologically positive for strongyloidiasis, thus may be harboring latent *S. stercoralis* infection. Thus appropriate management of these at risk patients may be required before administration of immunosuppressive therapy to avoid incidence of fatal hyperinfection.

PB21

Molecular diversity of *Mycobacterium tuberculosis* in Kelantan, Malaysia

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Mycobacterium tuberculosis is the causative agents for tuberculosis, an oldest infectious disease in the world. It remains the leading cause of death by infectious disease. With regards to Malaysia, the number of cases detected per year has not declined substantially either. The objective of current study is to determine the molecular diversity of *M. tuberculosis* by spoligotyping among tuberculosis patients in Kelantan, Malaysia. In this study, we analysed the spoligotyping of 141 *M. tuberculosis* culture isolates from different tuberculosis patients (2010 to 2012) from 2 main hospitals in Kelantan. The data obtained in this study were compared to an international molecular marker database named SITVITWEB that contained patterns from 58 180 clinical isolates from more than 100 countries. Spoligotyping has revealed 54 spoligotype patterns with 31 known Shared-type (ST) and 26 orphan ST in the database. There were 13 known strains in which the predominant spoligotype belonged to the Beijing strains (29, 20.6%). Other less dominant spoligotypes include EAI1_SOM (28, 19.9%) and EAI5 (22, 15.6%). Among all spoligotypes, 21 patterns have been defined as an orphan in the database in which there were 4 patterns had 2 isolates each and the rest had single isolate each. We conclude that, the predominant circulating *M. tuberculosis* strain in Kelantan is of Beijing genotype. We suggest further study is needed to understand the spread of this infection and association of these strains with different clinical presentations of tuberculosis patients.

PB22

Enhancement Of Cell Proliferation By Addition Of Tgfb1 On Stem Cells From Human Exfoliated Deciduous Teeth

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Introduction: Transforming growth factor beta-1 (TGF β -1) is a growth factor which is important in various cellular mechanisms including cell proliferation. TGF β -1 has been associated with epithelial cells and in wound healing process. Stem cells from human exfoliated deciduous teeth (SHED) are mesenchymal stem cells (MSCs) which have gained popularity in tissue regeneration research whereby many researchers are now trying to induce the mesenchymal stem cells (MSC) into epithelial-like cells. **Objective:** To assess the TGF β 1 concentration related proliferation of SHED using MTT assay. **Methods:** SHED primary cell line (1×10^4 cells/well) was cultured in 96 well-plate using the serum-free growth media (KGM, Lonza). Different concentrations of TGF β 1 (0.3125, 0.625, 1.25, 2.5, 5.0, 10.0 and 20.0 ng/ml) were introduced to all wells and the cells were incubated in CO₂ incubator at 37°C for 24 hours. The cultured cell in the serum-free growth media without TGF β 1 was used as a control. Proliferation of the cells was measured using mitochondrial dehydrogenase activity (MTT assay). The tests were conducted in triplicate. **Results:** The proliferation of SHED was more than 50% in all the TGF β 1 concentrations analyzed and higher the concentration of TGF β 1, higher was the proliferation rate. **Conclusions:** There is proportional increase in the proliferation of SHED with increasing concentrations of TGF β 1.

Effects Of Aerobic Dance Exercise On Immune Functions In Women

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INTRODUCTION: Physical activity has an influenced on immune function which crucially depending on many factors. However, many of us still unaware the effectiveness of aerobic dance exercise as well as combination of aerobic dance exercise with honey supplementation on immune function in women. **OBJECTIVE:** To determine the effects of aerobic dance exercise on immune function in women **METHODS:** To investigate the effects of 8 weeks of aerobic dance exercise and combined aerobic dance exercise and honey supplementation on immune function in women. Forty four healthy sedentary women (25-40 year-old) were aged and weight matched, and subsequently being assigned into four groups with n=11 per group: Control (C), honey supplementation (H), aerobic dance exercise (Ex) and combined aerobic dance exercise with honey supplementation (HEX) groups. Honey drink was consumed by H and HEx groups, in a dosage of 20g of honey diluted in 300ml of plain water, for 7 days a week for 8 weeks. Blood samples were taken prior and after 8 weeks to determine full blood counts and lymphocyte profiles by immunophenotyping. **RESULTS:** Total lymphocyte counts were both increased in Ex and HEx groups and counts higher in HEx group though it was not significantly increased. T cytotoxic (CD8), T helper (CD4), and B cells (CD 19) counts were increased in Ex and HEx groups after 8 weeks, however, only T cytotoxic (CD8) and total B cells (CD19) counts ($p<0.05$) were significantly increased in HEx group. **CONCLUSION:** Both activities of aerobic exercise as well as combination of aerobic dance exercise and honey supplementation do provide beneficial effects on immune functions in women.

PB24

**The Antinociceptive Effects Of Tualang Honey Administration During Pregnancy In
The Male Rat Offspring**

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Yusof

Introduction: To date, it is not known whether there is any effect of honey administration during pregnancy on the nociceptive responses in offspring. Therefore, the objectives of the present study were to elucidate the effects of Tualang honey administration during normal pregnancy on pain responses in male rat offspring. **Methods:** Pregnant rats were given either Tualang honey (1.2g/kg body weight/day) or distilled water from day 1 of pregnancy until delivery. Twelve out of twenty-eight male offspring were allocated for tail flick test and the remaining rats were allocated for the formalin test. Tail flick latency time was recorded in tail flick test while rats behavior and paw oedema were assessed in formalin test. All data were analyzed using SPSS, version 18. Independent t-test was used to analyze tail flick latency time and paw diameter; while repeated measures analysis of variance (ANOVA) was used to analyze pain behaviour data. The significance level was taken as 0.05 for both analyses. **Results:** The offspring from the honey group had significantly higher tail flick latency time compared to the control groups. The formalin pain score was generally lower in the offspring from honey group but the differences were not statistically significant. The paw oedema was also significantly reduced in the treated group compared to control group. **Conclusion:** Tualang honey administration during pregnancy modulates pain responses in the offspring. The present study provides novel knowledge regarding the possible role of tualang honey in fetal neural development which modulates pain responses in later life.

Evaluation Of Hdl2 And Hdl3 Subfraction Based On Density Gradient Ultracentrifugation Methods

Nura'zimaturrahmah, J., Froemming, G.R.A., Mohd Yusri, I., Siti Hamimah, S.A.K. and Nawawi, H.

Introduction: High Density Lipoprotein (HDL), a combination of highly diverse particles, is well established as an anti-atherosclerotic agent. However more and more literature is showing that that not all particles are equally protective against atherosclerosis and cardiovascular diseases. To avoid misinterpretations of results the separation method used to isolate the different HDL populations needs to be evaluated. **Objective:** To establish an isolation method that allows compositional differentiation between HDL subpopulations. **Methodology:** Total HDL, HDL2 and HDL3 were sub-fractionated from pooled-plasma by a "single step" or "three steps" ultracentrifugation method based on density gradients. The isolated fractions were confirmed using 4-20% SDS-PAGE and Western blotting. The concentration of apolipoprotein-AI (Apo-AI) and Apo-AII in the different HDL fractions were determined by ELISA. Data was analyzed using SPSS.

Results: SDS-PAGE of all fractions showed bands for Apo-AI (26 to 28 kDa) but not for Apo-AII (17 kDa) in both ultracentrifugation methods. Minimal traces of albumin (66 kDa) in the "three steps" ultracentrifugation were found compared to the "single step" method. Western blotting confirmed the presence of Apo-AI, and absence of Apo-B in both methods. ELISA showed a significant difference (p -value <0.05) of Apo-AI in total HDL between both methods but there is no significant difference in the HDL2 and HDL3 fraction. Apo-AII was observed at higher concentration in HDL3 than HDL2. **Conclusion:** It shows the importance of evaluating the isolation method used to obtain HDL2 and HDL3 populations as the anti-atherosclerotic activity of the HDL subpopulations is closely related to their structure and composition.

PB26

Youth in trouble: unhealthy dietary behaviors and other lifestyle factors among school students in Tarqumia, Palestine

Farid AW Ghrayeb, Mohammad Rusli A, Ayesha Al Rifai, Mohd Ismail I

Introduction: Unhealthy dietary behaviors and other lifestyle factors can increase the risk of cardiovascular disease, cancer and diabetes in adulthood. **Objectives:** This descriptive cross sectional study aimed to determine the prevalence of inappropriate dietary behaviors, smoking and low levels of physical activity among adolescents aged 13 to 17 years old in Tarqumia, Palestine. **Methods:** Arabic version of the international Global School Health Survey (GSHS, 2003) was self-administered to a multi-stage cluster random sample of 343 male and 337 female students in grade 7 through 11 at four public schools in Tarqumia, Palestine. STATA software was used to describe the data and to compare the association between genders. **Results:** The results showed that 34.7% of students used to skip breakfast on a daily basis. The mean intakes of milk and fruits/vegetables, which is consumed in boys more than girls ($p < 0.001$), are 27.9% and 7.6%, respectively. Although boys participated in physical activity more than girls ($p < 0.001$), the percentage of active students for a total of ≥ 60 minutes/day on five or more days was as low as 16.5%. About one third (31.6%) of students are defined as current smokers; smoking is more prevalent among boys than girls ($p < 0.001$). **Conclusions:** The findings of this study revealed that the majority of the participants are involved in at least one risk-taking behavior. These behaviors are potential risk factors for chronic disease in adulthood. Therefore, thorough health care strategies must be implemented to help adolescents to develop lifelong healthy behaviors.

Chemotaxis Response-phosphatase CheZ: An Immunogenic Protein Identified in Sera of Acute Typhoid Fever Patients Using Proteomic Approaches

Chin Kai Ling, Nur Eliyana Mohd Reduan, Goay Yuan Xin, Eugene Ong Boon Beng, Phua Kia Kien, Prabha Balaram

Introduction: Typhoid fever, caused by *Salmonella* Typhi, remains a public health concern especially in under-developed countries. A major cause of this is due to a lack of sensitive biomarkers for diagnostic tests. Serum is widely used to profile biomarkers. However, the presence of high abundance proteins in sera mask the detection of low abundance proteins that are expected to contain antigens specific to the particular disease-state. **Objectives:** This study aims to identify immunogenic proteins of *Salmonella* Typhi by fractionation of sera from acute typhoid fever patients using immunoaffinity column to remove the two most abundance proteins in human sera, which are albumin and immunoglobulin G. **Methods:** Fractionated sera containing the low molecular weight proteins were subjected to Western blot with sera from typhoid, normal and non-typhoid patients, and enzyme-based visualization to elucidate the presence of immunogenic proteins. Bands positive with typhoid sera and negative with normal and non-typhoid sera were considered *in vivo* specific antigens associated with typhoid fever. The bands were excised and further analyzed using LC-MS/MS. The identified proteins were cloned and recombinant protein tested for antigenicity. **Results:** An antigenic band at a molecular weight of 12kDa targeted by human IgG was specific for typhoid fever. LC-MS/MS analysis showed that the most significant bacterial protein in this band was chemotaxis response-phosphatase CheZ, a protein involved in the pathogenicity of the bacteria. Cloning of this protein was done and tested for antigenicity using indirect ELISA with clinical typhoid, non-typhoid and normal sera as controls. The results showed that this protein has sensitivity of 50% and specificity of 92%. **Conclusion:** The protein chemotaxis response-phosphatase CheZ was specifically expressed *in vivo* in typhoid fever, and is hypothesized to have potential to serve as a novel biomarker for typhoid detection.

PB28

DISSOLVING PERSPEX DUST OF VARIOUS PARTICLE SIZES IN CHLOROFORM

Iqbal Tariq, Ahmad Lutfi Yusof

Plastics have been used in almost every field but it appeared to do miracles in biomedical engineering. Due to their inert property plastics and its composites have found uses in human body. Artificial bone, bone cement, Maxillofacial polymers, nail polymer, dental, orthodontic acrylics are few examples of plastic usage. Production of plastic composites usually involves plastic solutions. This paper describes the dissolution of perspex particles, a type of acrylic plastic using chloroform. Perspex particles were obtained by drilling perspex sheet. The drilling intervals small intervals were kept low (0.5 to 10 sec) to avoid thermal degradation of the perspex. The resulting particles were according to sizes categorized as 'Mixed' (0.1mm to 1.5mm) and 'Fine' (0.1mm to 1.5mm approx). Three samples, 1200 mg Mixed, 1200 mg Fine and 400 mg Mixed were immersed in 10.94 ml, 10.64ml and 11.33 ml of chloroform respectively in identical beakers, under a fume hood. When the 400 mg dissolved, 800mg mixed with 1.09 ml chloroform were added to the solution. To determine the solvent evaporation rates the samples were weighed every 0.5 minutes. It was observed that the variations in the evaporating rates of the three samples (appeared as lower slopes in the weight curve) was due to the variation of the evaporating areas of the solutions due to floating of the particles. Finest plastic particles were the first to go and give the first lower slope in the weight curve after which they dissolved out. Similar low slopes were later observed suggesting a large particle group being dissolved. It was also observed from comparing the weight curves of 400 mg sample (mixed) and 1200 mg (fine) from that 8.7 ml solvent will be sufficient to dissolve 800mg plastic dust (mixed).

IDENTIFICATION AND CHARACTERIZATION OF CUMULATIVE CHEMICAL STRESS RESPONDING GENES IN HUMAN RELATED TO CANCER

MUHAMMAD YOUNAS KHAN BAROZAI, SHAFIA MUZAFFAR, FARRUKH BASHIR,
SABA AFZAL, FAREEDA BEHLIL

Background and Objectives: The chemical exposure is one of the causes of the human cancer. The individual chemical stress related to human cancer has been frequently studied. However, cumulative stresses of chemicals have hardly been researched. Therefore this study has been carried out to address this gap. This study aimed to identify and characterize cumulative chemical stresses responding genes in human beings causing cancer.

Methods: In human various studies have been made for the analysis of gene expression under different chemical stress conditions, using DNA microarray technology. These available microarray data under various organic, inorganic and combined chemical stresses were analyzed by applying the comparative genomics' tools.

Results: Total 537 cumulative chemical stresses responding genes related to cancer were identified and characterized. Out of 537 responding genes, 343 were found as up-regulated and 194 down-regulated. The chemical stresses responsive genes were characterized on the basis of biological processes, cellular components and molecular functions. The maximum numbers of genes were found on the chromosome 2.

Conclusions: This type of analysis provides a valuable genomics resource of information regarding gene responding program under chemical stresses related to cancer. These findings will also help us to understand gene behavior under various chemical stresses and to develop therapeutics to fight against cancer and these chemicals.

Pneumococcal serotypes distribution and macrolide resistance pattern among pediatric isolates in Malaysia. (2005-2010)

Revathy Arushothy, Norazah Ahmad & Rohani Md Yasin

Ninety-five *Streptococcus pneumoniae* isolates (2005-2010) from pediatric patients were examined to determine the serotype distribution and susceptibility to penicillin and macrolide antibiotics. The isolates were mostly from blood (60.4%) and other sterile specimens (5.9%). The serotype was determined using the Pneumotest Quellung Test Kit, antibiotic susceptibility by modified Kirby Bauer disk diffusion method and minimum inhibitory concentration (MIC) using E-test strip. PCR was carried out to detect erythromycin resistance genes (*ermB* and *mefA*). Eight most common serotypes were serotype 19F (29.5%), 19A (12.6%), 23F (8.4%), 6B (4.2%), 14 (4.2%), 18F (2.1%), 7A (2.1%) and 6A (1.1%). The penicillin resistance was 65.3% with serotype 19F (40.3%) followed by 19A (14.5%) and 23F (11.3%) with the MIC₉₀ ranging between 128-192µg/ml. The erythromycin resistance was 63.2% with serotype 19F (42.7%), 19A (15.0%) and 23F (11.7%) with the MIC₉₀ for erythromycin was ≥256µg/ml. The resistance to clarithromycin and azithromycin were 57.9% and 58.9% respectively. *S. pneumoniae* resistant to ≥ 3 groups of antibiotic were observed for 30.5% of isolates, in which serotype 19A was most resistant, followed by 19F (20.7%) and 23F (13.8%). The positive strains for *mefA* gene were observed in 54.8%, 25.0% were positive for *ermB* gene and 21.7% for both the genes. About 46.7% of the isolates which expressed both *ermB* and *ermB+mefA* gene have ≥256µg/ml MIC₉₀ for erythromycin. This study showed that, about 40% of the isolates from children ≤1 years were multidrug resistant strains of serotype 19A and 19F. 19A serotype is included in PCV13 pneumococcus vaccine but not in PCV7 and PCV10 vaccine.

Evaluations of Antibacterial Activity of Extract from Local Earthworm *Megascolex* spp. on Clinically Important Bacteria

GimCheong Tan, YinPin Lim and QianFei Chiu

Emergence of antibiotic resistance in pathogenic bacteria has led to bio-prospect of potential antimicrobial agent from natural resources. Aside from herbal plants, earthworms also have great therapeutic potential. Hence, this study aim to screen for antimicrobial potential of various extracts from local earthworm. Local earthworms were first sorted morphologically, then molecularly identify through 16S rDNA sequencing. These earthworms were washed and freeze-dried before proceed for sequential extraction using solvents hexane, methanol and water at increasing polarity. MIC and MBC of each extracts on clinically important bacteria were determined. Among all extracts, hexane crude extract showed lowest MIC against Gram-positive bacteria (*B. cereus*, *B. subtilis* and MRSA) at concentration of 2.50mg/mL, 1.25mg/mL and 0.31mg/mL respectively. Hexane extract showed lower inhibitory activity on Gram-negative bacteria (*A. baumannii*, *P. aeruginosa*, *K. pneumonia* and *V. cholerae*) at MIC of 5-10mg/mL, except for *C. freundii* and *E. gergoviae* where no inhibition were observed at highest concentration of 10mg/mL. Generally, methanol and water extracts show low inhibitory activities towards both Gram-positive and Gram-negative at MIC of 5-10mg/mL. No inhibition was observed in *K. pneumonia*, *C. freundii* and *E. gergoviae* when treated with methanol extract. Both *C. freundii* and MRSA also not inhibited by the water extract. All three extracts only shows bactericidal activity towards *B. cereus*, *B. subtilis* and *A. Baumannii*. Hence, hexane extract of *Megascolex* spp. showed good inhibitory activity especially towards Gram-positive bacteria. Active compounds should be elucidate and explore for its therapeutic potential in treating infection by Gram-positive bacteria.

PB32

The Induction of Apoptotic Effect on MCF-7, Breast Cancer Cells by Apigenin and Rutin

Kamaludin R, Froemming GA, Ibahim MJ, Narimah AHH

Apigenin and rutin have been known to possess strong anti-cancer properties. Both active compounds are believed to promote cell death in various cancer cells through apoptotic mechanism. However, no studies have been conducted to determine their effects on breast cancer cells. Thus, we aim to investigate the effect of these on the cell apoptosis of human oestrogen-receptor positive breast cancer cells, MCF-7 cells as compared to normal breast cells, MCF-10A. The cell apoptosis was determined using both Annexin V-FITC and cellular DNA fragmentation ELISA assays. Both cells were treated separately with apigenin and rutin at their IC_{50} concentrations of $34\mu M$ and $46\mu M$, respectively for 0, 36, 48, 60, 72, 84 and 96 hours. Tamoxifen (IC_{50} concentration of $30\mu M$) was used as positive control. Apigenin and rutin were found to induce cell apoptosis in MCF-7 in a time dependent manner ($p < 0.05$, $n=3$) beginning at 36 hours with 56%, 89%, 101%, 136%, 175% and 204%, respectively and 21%, 36%, 74%, 88%, 106% and 157%, respectively as compared to MCF-10A ($p < 0.05$, $n=3$) with 8%, 11%, 16%, 17%, 22% and 56%, respectively. Tamoxifen was also found to induce cell apoptosis in MCF-7 in a time dependent manner ($p < 0.05$, $n=3$) beginning at 36 hours with 7%, 66%, 74%, 77%, 111% and 116% as compared to MCF-10A ($p < 0.05$, $n=3$) with 1%, 7%, 13%, 13%, 19% and 57%, respectively. Interestingly, both apigenin and rutin were found to induce higher apoptosis in MCF-7 as compared to MCF-10A ($p < 0.05$, $n=3$). Both these compounds were also more potent as apoptotic inducer agents in MCF-7 ($p < 0.05$, $n=3$) as compared to tamoxifen at their respective IC_{50} concentrations. Therefore, we believed that both apigenin and rutin have potential as natural apoptotic inducer agents in the treatment of breast cancer. However, further studies are required to investigate the apoptotic signaling transduction pathways induced by these compounds in breast cancer cells.

**EFFECTS OF APIGENIN ON CELL VIABILITY, DNA FRAGMENTATION AND
TELOMERASE ACTIVITY IN TRIPLE NEGATIVE BREAST CANCER**

Noorfaiza A.A , Siti H Sheikh Abdul Kadir, Froemming.G.R.A.,

INTRODUCTION: Triple negative breast cancer (TNBC), negative for estrogen, progesterone and Her2*neu* receptor expression, is very difficult to treat. High telomerase activities have been shown to increase the survival rate of many cancer types. Little is known about telomerase activity in TNBC and if apigenin could cause its deactivation.

OBJECTIVE: The present study investigated the effects of apigenin on apoptosis and telomerase activity in TNBC.

METHODOLOGY: Non-tumorigenic breast cells (MCF-10A) and TNBC cells (MDA-MB-231) were treated with cisplatin (control) and apigenin in a concentration range from 2 to 50 µg/ml. The cytotoxicity of the compounds was assessed by MTS Cell Proliferation Assay (Promega) after 72 h of treatment. The IC₅₀ value for each compound was used for DNA fragmentation (Cellular DNA Fragmentation ELISA, Roche) and relative telomerase activity (TeloTAGGG PCR ELISA^{Plus} kit, Roche) measurement. Data were analyzed using one way ANOVA and a value of p<0.05 was considered as significant.

RESULTS: The MTS assay showed that apigenin (8 µg/ml) and cisplatin (12 µg/ml) caused 50% cell death in MDA-MB-231 while the viability of MCF-10A was unaffected. Treatment using IC₅₀ of both compounds and its combination caused a significant increase of DNA fragmentation and reduction of telomerase activity in TNBC compared to control.

CONCLUSION: Our data suggest that apigenin could be a potential new agent to treat TNBC however additional studies measuring telomere length and gene expression studies are required for confirming the mechanism of action for apigenin in TNBC.

PB34

Association of selected human microRNAs in susceptibility and resistance to Tuberculosis

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MicroRNAs (miRNAs) play an important role in the pathogenesis of diseases. Human miRNAs could inhibit the replication and survival of *Mycobacterium tuberculosis* (Mtb) genes in the human host. Mutations within miRNAs can alter their target selection, thereby unable to inhibit Mtb genes and augmenting the susceptibility to the disease. This research was undertaken to investigate the genetic association of pulmonary TB with six human miRNAs namely: hsa-miR-370, hsa-miR-520d, hsa-miR-154, hsa-miR-497, hsa-miR-758 and hsa-miR-593, which have been predicted to interact with Mtb genes. The objective of the study is to determine the sequence variation of six human miRNAs genes potentially associated with the inhibition of critical Mtb genes in TB patients (n=33) and healthy individuals (n=38). Six sets of primer were designed to amplify specific region of each of the six human miRNAs. The amplified products were sequenced in order to study the mutation that could exist in the 33 TB patients and 38 healthy controls to demonstrate their association. However, we did not detect any mutations in all the six human miRNAs when comparing the sequence with the reference sequence available in [<http://www.mirbase.org>]. In conclusion these six miRNAs may not be involved directly in susceptibility or resistance to TB. The next stage of the study is to study the expression level of these human miRNAs. A major limitation of the study is that we focused only on the human miRNA genes but not the potential targeted Mtb genes. Further studies should be performed on Mtb genes targeted by the human miRNAs.

PB35

Comparative study of bacterial and fungal concentrations in indoor air between exposed and non-exposed workplaces in Kota Bharu, Kelantan

Nur Fatin Haris, Faridah Naim and Siti Marwanis Anua

Background: Animal house and laboratories are among the workplaces with work activities which can harbour airborne microorganisms. The exposure to biological hazard can lead to various health effects to the workers.

Objectives: This study aimed to compare the concentration levels of bacteria and fungi between the high risked exposure workplaces (animal house and laboratories) and control workplaces (offices and library).

Method: Animal house, microbiology laboratory, pathology laboratory, offices and library were selected for bioaerosol monitoring. Airborne sampling adapting the NIOSH 0800 method using Aquaria-Microflow α and a passive sampling (settling) technique were used to collect both bacteria and fungi samples. Sampling was done twice daily at three locations during the morning and afternoon sessions, for five consecutive days. Both bacteria and fungi cultures were enumerated after 1-2 days and 3-4 days incubation period, respectively. Results were calculated as colony forming unit concentration (cfu/m³).

Results: The highest bacteria and fungi concentrations were found in animal housing room (1326.3 and 1534.4 cfu/m³ respectively). The bacterial concentration in the animal housing room is 35-fold and 46-fold higher than the averaged bacterial concentrations in the offices (38.1 cfu/m³) and library (28.9 cfu/m³) respectively. The fungi concentration was more than 100-fold compared to both non-exposed workplaces (offices; 13.5 cfu/m³ and library; 17.6 cfu/m³). The results for laboratories were within the similar range of these non-exposed workplaces.

Conclusion: Although there were no existing workplace exposure limits for microorganisms, such levels are dangerous to health (should not exceed 500 cfu/m³) if found in the residential indoor environment (AIHA). Adequate ventilation system and personal protecting equipment is important to ensure the level of bioaerosol concentrations below the minimum recommended limit.

PB36

**CHEMICAL ANALYSIS OF ANTIOXIDANT CAPACITY OF *PIPER SARMENTOSUM*
AND *AVERRHOA BILIMBI* BOTANICAL BEVERAGES.**

Farrah Shafeera Ibrahim, Azizah Othman, Siti Nor Saodah Mohd Arshad, Zulkhairi Amom

Antioxidant food supplies the body with essential antioxidant nutrients to enhance the immune system and eliminate excess free radicals. *Piper sarmentosum* (Ps) and *Averrhoa bilimbi* (Ab) possesses antioxidant effects. This study attempts to determine the nutritional content and antioxidant capacity of Ps and Ab botanical beverages. The proximate analysis was determined according to standard methods described by the Association of Official Analytical Chemists (AOAC), 1995. The potential antioxidant activity were analysed by 1,1-diphenyl-2-picrylhydrazyl (DPPH) and ferric reducing antioxidant power (FRAP) assay. Flavonoid was assessed as total phenolic content (TPC). Proximate analysis revealed that both Ps and Ab contains high moisture ($Ps = 89.57 + 0.53\%$, $Ab = 90.19 + 0.04\%$, $Ps+Ab = 89.80 + 0.04\%$) and carbohydrate ($Ps = 9.02 + 0.08\%$, $Ab = 9.01 + 0.14\%$, $Ps+Ab = 9.01 + 0.04\%$) but fat content was detected. Ab botanical beverage demonstrated a high TFC and vitamin C concentration ($0.03 + 0.00$ g/100 g sample and 54.17 ± 1.27 mg/L) respectively whereas Ps botanical beverage showed the highest percentage of scavenging activity 71.83 ± 1.43 %. Ps+Ab botanical beverage showed highest concentration of Trolox by FRAP Assay; 95.00 ± 1.35 mg TE /100 g sample. The present study indicates the potential Ps and Ab botanical beverages as another natural sources of antioxidant which may contribute towards health benefits.

Repression of STATs and JAKs genes by 5-Aza confer sensitivity to PKC-412 in resistant acute myeloid leukemia cells

HA Al-Jamal, SA Mat Jusoh, Mohamad Ros Sidek and MF Johan

Introduction: Resistance to tyrosine kinase inhibitor (TKI) remains the challenge in the treatment of AML. PKC-412 is a multi-targeted TKI that potentially inhibits FLT3 tyrosine kinase. STAT proteins usually play roles in the activation or suppression of malignant transformations. 5-azacytidine (5-Aza) is a demethylating agent that has shown activity against AML and MDS by reactivation of silenced tumour suppressor genes. In this study, we aimed to test the hypothesis that repression of expression in the Jak-Stat family members, in resistant AML cells treated with 5-Aza confer sensitivity towards PKC-412.

Method: Resistant leukemic cells to PKC-412 (MV4-11-R) were developed. Gene expression profiling of whole genome was assessed using affymetrix microarray for the resistant cells before and after treatment with 5-Aza. The cytotoxicity and apoptosis assays of PKC-412 on 5-Aza treated and untreated resistant cells were investigated using MTS and Annexin V-FITC respectively.

Results: In 5-Aza treated resistant cells, JAK1, JAK2, STAT1, STAT3, STAT5B and STAT6 showed down-regulation ranging from 2.5 folds (JAK1) to 19 folds (STAT5B) compared to the untreated. Additionally, the IC_{50} of PKC-412 on 5-Aza treated cells was 10 times lowered i.e. 300 nM compared to 2953 nM on untreated ($Z = -1.964$, $p = 0.05$). Moreover, the percentage of apoptotic cells in 5-Aza treated cells was 58% compared to 13% in untreated, at 300 nM of PKC-412 ($P < 0.001$).

Conclusion: 5-Aza induced apoptosis and confers sensitivity response to the resistant AML cells towards PKC-412 by repression of gene expressions of JAK-STAT family, thus the genes will be of valuable target in the treatment of AML.

PB38

P15-deoxy- Δ -12,14-prostaglandin J₂ induces apoptosis and inhibits migration of human breast cancer cells in vitro.

Siti Nur Hasyila Muhammad, Noor Fatmawati Mokhtar, Nik Soriani Yaacob

Introduction: 15-deoxy- Δ -12,14-prostaglandin J₂ (15dPGJ₂), is a natural agonist of the nuclear receptor peroxisome proliferator activated receptor gamma (PPAR γ). 15dPGJ₂ has been reported to have anticancer effects but the mechanism of action is not fully elucidated. In this study, the ability of 15dPGJ₂ to induce apoptosis in and inhibit the migration of breast cancer cells are investigated.

Objectives: To determine caspase-dependent apoptosis and migration inhibitory activity in the mechanism of 15dPGJ₂ induced anticancer effects in MCF-7 and MDA-MB-231 breast cancer cells.

Methodology: MCF-7 and MDA-MB-231 cell lines were treated with 15dPGJ₂ for 24hr. Apoptotic and necrotic activity were examined by staining the cells with annexin V-FITC and propidium iodide (Roche) and analysed by flow cytometry and fluorescence microscopy. Cells were stained with FAM-VAD-FMK FLICA reagents (Immunochemistry technologies, LLC) for detection of caspases by flow cytometry. Cellular migration according to chemotaxis analysis was performed using 24-well cell culture chamber with 8 μ m sized pores (Polyester (PETE) membrane) inserts and cells were stained with crystal violet before being observed under the microscope. Reverse Transcriptase (RT) PCR was used to determine the expression of the chemokine receptor (CCR), a migration gene marker.

Results: 15dPGJ₂ induced apoptosis of MCF-7 and MDA-MB-231 cell lines with activation of caspase 3/7, 8 and 9. In addition, 15dPGJ₂ was found to inhibit migration of both cancer cells possibly via down regulation of CCR.

Conclusions: 15dPGJ₂ induces caspase dependent apoptosis and inhibits migration of human breast cancer cells.

A Study of Paraoxonase (PON-1) Activity and Concentration in Coronary Artery Disease Patients in Kuantan, Pahang

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Introduction: Paraoxonase 1 (PON1) is a high density lipoprotein (HDL) associated enzyme that is known to inhibit oxidative modification of low density lipoprotein (LDL), thus implicated in the pathogenesis of atherosclerosis and coronary artery disease (CAD). It has been suggested that the variability in this enzyme activity is attributed to polymorphism in PON-1 gene. Nevertheless, even within the same genotype, PON-1 activity and concentration has been shown to vary widely between the different individuals. Therefore, recent studies in various populations have emphasized on the importance of measuring the PON1 activity and concentration in assessing the risk of CAD. The data of such study is however scarce in Malaysia.

Objective: The aim of this study was to compare the PON-1 activities and concentration between the healthy controls and CAD patients.

Methods: A comparative cross sectional study was carried out on 187 CAD patients in Tengku Ampuan Afzan Hospital, Kuantan and 188 healthy controls. Serum samples were analyzed for PON-1 activities towards paraoxon and phenylacetate as well as for HDL-cholesterol. PON1 concentration was expressed as PON1 activity per mmol of HDL.

Results: Serum PON-1 activities as well as concentration were found to be lower in CAD patients than in the healthy controls but the results were not significant ($p > 0.05$).

Conclusion: Our finding suggested that PON1 activities and concentration were similar between healthy control and CAD patients in Kuantan, Pahang. A multicentre study may be required to confirm our findings in Malaysian population.

PB40

Antibody Reactivity of Mice Immunized with Different Adjuvanted Proteoliposomes from *Mycobacterium bovis* BCG (PLBCG) against *M. tuberculosis* antigens

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Bacille Calmette Guerin (BCG), an attenuated strain of *M. bovis*, is the only available vaccine against tuberculosis (TB). However, the efficacy of BCG in affording protection against TB, is still questionable. This vaccine is only protective against childhood TB, but is neither effective against the disease in adults nor effective in preventing transmission. Thus, an effective vaccine better than BCG is urgently needed to protect TB in both adults and children. We developed proteoliposomes derived from BCG (PLBCG) and tested their immunogenicity and cross-reactivity against Mtb antigens in mice. Sera from PLBCG+Alum immunized mice contained higher total IgG, IgG1 and IgG2a against PLBCG compared to other groups. The PLBCG+ Montanide ISA 51 VG (Mont) immunized group demonstrated a significant increase in total IgG and IgG1 against PLBCG compared to the control groups. In response to Mtb antigen cocktail, we observed that only the PLBCG+Alum immunized group produced higher total IgG and IgG1 response compared to other groups. For PLBCG+Mont immunized group, a significant increase in IgG1 was observed compared to control groups. These results suggest that PLBCG may be a potential candidate vaccine against TB and that Alum may be a better adjuvant to induce higher immunogenicity and cross-reactivity against Mtb.

EFFECTS OF THEAFLAVINS-RICH FRACTION ON TUMOR NECROSIS FACTOR-ALPHA AND ENDOTHELIAL NITRIC OXIDE SYNTHASE IN LIPOPOLYSACCHARIDES STIMULATED ENDOTHELIAL CELLS

Remea Awang Jalil, A. Mohd Ismail, G.R.A. Froemming, H. Nawawi, T.H. Abdul Rahman

INTRODUCTION: Tumor necrosis factor alpha (TNF- α) is known to be involved in early atherosclerosis. Many studies have shown that TNF- α is an important regulator of endothelial nitric oxide synthase (eNOS) by diminishing nitric oxide and increasing superoxide anion production. Theaflavins are the main polyphenolic compounds in black tea and believed to exert anti-inflammatory effects thus rendering cardioprotection against atherogenesis.

OBJECTIVES: We investigated anti-inflammatory effects of theaflavins rich fraction (TFs-RF) on gene and protein expression of TNF- α and eNOS in lipopolysaccharides (LPS)-stimulated human umbilical vein endothelial cells (HUVECs).

METHODS: HUVECs were concurrently incubated with 1 μ g/ml LPS and non-cytotoxic TFs-RF 10,20,30,40 and 50 μ g/ml for 16 hours. Gene and protein expression of TNF- α and eNOS were evaluated using quantitative Real-Time PCR (qRT-PCR) and ELISA respectively. Data were analyzed using one-way ANOVA and post-hoc *tukey*, and expressed as mean \pm SEM.

RESULTS: LPS significantly increased TNF- α gene but not protein expression which correlated with a down-regulation of eNOS expression. Reduced gene expression of eNOS was reversed by 30 μ g/ml TFs-RF which had no significant effect TNF- α gene and protein expression. Overall 10-50 μ g/ml TFs-RF increased eNOS and TNF- α expression in LPS stimulated HUVECs.

CONCLUSION: We suggest that TFs-RF is a potential anti-atherogenic agent because of its ability to increase eNOS levels in LPS stimulated epithelial cells. However, this elevation seems to be independent of TNF α . Further studies examining the mechanisms of action of TFs-RF with regards to eNOS are required.

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**KNOWLEDGE, ATTITUDES AND PRACTICE (KAP) TOWARDS SELF-SAMPLING
METHOD FOR ROUTINE CERVICAL CANCER SCREENING IN KOTA BHARU,
KELANTAN.**

Fatma Hariati Mohamad Zaki, Nik Hazlina Nik Hussain, Wan Zahanim Wan Yusuf,
Pazuddin Ismail, Nor Hayati Othman

Background: In Malaysia, the major problem with the cervical cancer screening is the non-optimal participation rate for Pap smear. Implementation of self-sampling method may increase the participation of women to screen for this cancer.

Objective: To examine the KAP of women in performing self-sampling of cervical smear at home using validated questionnaires.

Method: Women who volunteered to be included in the study were given questionnaires before Pap smear sampling was done. There were two sampling methods; self-sampling using Evalyn [test method] and sampling by clinician [gold standard]. All women were subjected to both screening methods. The method of self-sampling was taught using a short video demonstration. The questionnaires assessed the participants' knowledge, attitudes, and practice before and after they underwent the self-sampling method. The study was approved by Research Ethics Committee. Statistical analyses were conducted using IBM SPSS Statistics 20.

Results : A total of 131 women were recruited from May 2011 to December 2012, however only 125/131 (95.4%) completed the questionnaires thus available for analysis. All of those women who have not had Pap smear done previously preferred the self-sampling method. The acceptability scores for self-sampling method and clinician collection method were not significantly different between women who had Pap smear screening or never had ($p>0.05$). 123/124 (99%) agreed to administer self-sampling in future if this method is implemented in Malaysia. If given choices either conventional Pap smear or self-sampling method, self-sampling was the preferred method in the majority; 113/125 (90.4%).

Conclusion: The study shows that self-sampling is a highly acceptable method for cervical cancer screening among the women studied. It does not take much time to educate the women on how to perform it.

ANTIFUNGAL ACTIVITY OF *Andrographis paniculata* ETHANOL EXTRACT GEL AGAINST FUNGAL AGENTS OF SUPERFICIAL MYCOSES

Tuan Noorkorina TK, Harun A and Siti Amrah S

Introduction: *Andrographis paniculata* (AP), a medicinal plant has a broad range of pharmacological effects. Not much research yet has been carried out on its antifungal effect onto superficial mycoses.

Objectives: This study aims at determining the antifungal activity of AP. The efficacy of AP ethanol extract gel was tested against fungal pathogens associated with superficial mycoses.

Methods: The AP ethanol extract was prepared according to standard protocol, followed by adding the petroleum jelly to make concentrations 1.5% (w/w), 2.5% (w/w), and 5.0% (w/w). The fungi tested, *Trichophyton mentagrophyte*, *T. rubrum*, *T. interdigitale*, *Microsporum fulvum*, *M. nanum*, *M. canis*, *Fusarium solani* and *Aspergillus fumigatus* were subjected to Potato Dextrose Agar (PDA) culturing. Efficacy of the gel at various concentrations of PDA, 1.0% (w/v), 5.0% (w/v) and 10.0% (w/v) were determined based on the mycelia growth inhibition percentage.

Results: Significant mycelial inhibition was seen at all gel concentrations and PDA concentrations tested ($p < 0.05$) except for *M. nanum*. At 1.5% (w/w) gel concentration, significant difference was seen only on all tested fungi except for *T. interdigitale*, *M. nanum*, *M. canis*, and *F. solani*. At 2.5% (w/w) gel concentration, there was no significant difference in the mycelial inhibition of *M. nanum* and *F. solani*, while at concentration 5.0% (w/w), significant difference were seen on all tested fungi except for *M. nanum*. The lowest PDA concentrations used, 1.0% (w/v) showed the least effect of antifungal activity.

Conclusion: We conclude that at concentration of 5.0% (w/w), AP ethanol extract gel has a good potential as antifungal agents, with evidence of the mycelial growth inhibition of most tested fungi. Further studies are needed to determine *in vivo* efficacy and clinical applicability of AP extract.

PB44

**Effects of High Frequency Electromagnetic Field Generated by 2G and 3G
Mobile Phones on the Viability of *Staphylococcus aureus***

Zaini Mohd Zain, Nur 'Aisyah Othman and Mohd Saufee Al-Firdaus Mohd Ismail

Introduction: During telecommunication, a mobile phone is usually placed in close proximity to the ear. Since the external auditory canal (EAC) is mainly predominated by bacterial microflora, such as *Staphylococcus aureus* that provides innate immunity against pathogens, it is interesting to know whether electromagnetic field (EMF) produced by mobile phones can affect the equilibrium of the microflora in the EAC.

Objective: To compare the effect of high-frequency EMF of 2G with 3G mobile phones on the viability of *S. aureus*.

Methods: Agar plates containing *S. aureus* were exposed to EMF of 2G and 3G mobile phones on two modes; standby and on-call for a duration of 60 min. Control group was not exposed. Viable colonies were counted following overnight incubation at 37°C and viability ratio was calculated based on the viable number of colonies after exposure to the number of colonies of the control group for that duration. Student T-test was used to determine the level of significance level at $p < 0.05$.

Result: During the first 15 min of exposure, there was a reduction in the viability in all the exposed groups but after 30 min, the group exposed to 2G phone during standby started to increase whereas the viability of the other groups continued to reduce further. After 60 min of exposure, significant ($p < 0.05$) reduction in the viability was observed in the group exposed to 3G phone during on-call in comparison to that exposed to 2G phone.

Conclusion: The EMF generated by 3G phone was more detrimental to the *S. aureus* than the 2G phone.

ACUTE HYPERTHERMIA INDUCED APOPTOSIS IN NORMAL HUMAN OSTEOBLAST CELLS BUT RETAINED MITOCHONDRIAL METABOLISM AND ALKALINE PHOSPHATASE ACTIVITY *IN VITRO*

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INTRODUCTION: Bone sarcomas are clinically treated with acute hyperthermia, however little is known about the combined effect of treatment duration and severity of exposure on the cellular response of normal bone forming osteoblast cells.

OBJECTIVES: The effects of acute moderate and severe hyperthermia on Normal Human Osteoblast (NH₂Ost) cell mitochondrial metabolism, cell cycle progression, rate of proliferation and apoptosis, heat chaperone proteins, and bone activity was studied.

METHODS: NH₂Ost cells were exposed to moderate (39°C), severe (45°C) hyperthermia, and control (37°C) for 12h. NH₂Ost mitochondrial metabolism was measured with MTS assay while cell proliferation was calculated after Tryphan Blue staining. Gene expression for CDK1, CDK2, CDK4 & p21 (cell progression), HSP27 & HSP70 (heat shock proteins), and Caspase 8, 9, 3, Bcl-2 & Bax (apoptosis) was quantitated using the RT² Profiler™ PCR Array. The mRNA fold regulation was statistically analyzed using Student's t-test. Flow cytometry confirmed rate of cell survival by staining with Annexin-V. Bone activity was measured using the alkaline phosphatase (ALP) colorimetric assay.

RESULTS: Twelve hours of moderate hyperthermia reduced NH₂Ost mitochondrial metabolism and cell proliferation. NH₂Ost metabolism was significantly inhibited at 45°C. Up-regulation of CDK4 (4.16±0.16folds), CDK2 (3.15±0.09folds), CDK1 (3.31±0.10folds) and down-regulation of cyclin dependent kinase inhibitor p21 (2.16±0.09folds) showed that the cells progressed through the cell cycle at 39°C. Meanwhile p21 was highly up regulated at 45°C by 28.74±0.33folds inhibiting cell progression. Heat shock chaperone proteins HSP27 and HSP70 were both up regulated under hyperthermia conditions. Caspase 8 was down-regulated (-1.01±0.23folds) while Caspase 9 (2.15±0.23folds) and 3 (2.14±0.15folds) was up-regulated at 39°C implicating apoptosis was triggered through the intrinsic pathway. The Bax:Bcl-2 ratio was 8.30:1.76 at 39°C. Annexin-V staining and ALP activity showed at 39°C high NH₂Ost survival rates and bone activity was minimally affected while at 45°C significant inhibition was observed.

CONCLUSION: We predict transient administration of moderate hyperthermia (39°C) at 12h on sarcoma cells prior to radiation may enhance radiosensitivity with minimal damage to NH₂Ost cells.

PB46

METHANOLIC EXTRACT OF *SMILAX MYOSOTIFLORA* TREATMENT ON MALE RATS: EFFECT ON PREGNANCY OUTCOME

Norliza Ahmad, Shyamoli Mustafa, Mohd Dasuki Sul'ain

Smilax myosotiflora (SM) is locally known as 'Ubi Jaga'. It belongs to the family Smilacaceae and grows in the south-east Asian forests. The tubers of SM were traditionally consumed to treat syphilis, fever and as an aphrodisiac to enhance sexual performance in men. However, the effects of paternal SM consumption on the pregnancy outcome are unknown. This study was carried out to evaluate the effects of methanolic extract of SM consumption by male Sprague Dawley rats on the pregnancy outcome of their female sex partners. Thirty two adult male rats divided into four groups were orally administered distilled water or *Smilax myosotiflora* (200, 400 and 800 mg/kg) daily for 30 days by gavage. Each group was mated with twenty four untreated virgin female rats. Post mating vaginal smear was obtained to ensure a successful copulation. The pregnant rats underwent caesarean section on 21st day of gestation. The number of preimplantation loss, postimplantation loss, live and dead fetuses with normal or abnormal morphology and fetal weight were evaluated to assess the pregnancy outcome. No significant difference in pregnancy outcome was found between the treated and control groups. No fetal malformation was noted either. The study indicates that SM consumption by the male rats does not have any toxic effect on pregnancy outcome.

Screening of Polymorphisms in Folic Acid Metabolic Genes and its Relationship with Spina Bifida

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Introduction: Mechanism underlying the beneficial effect of folic acid supplementation in reducing the risk of neural tube defect is still not well understood. Current evidences show the involvement of folic acid metabolic gene's polymorphism as contributing factors that regulate this pathway.

Objective: Therefore, the objective of this research was to determine the presence of polymorphic changes in methylenetetrahydrofolate reductase (MTHFR) and dihydrofolate reductase (DHFR-19 bp deletion) genes between mother-children pairs of case and control.

Method: With the approval of UKMMC ethic committee, genomic DNA was extracted from one hundred and forty consented bloods. Polymerase chain reaction (PCR), PCR-RFLP (Restriction Fragment Length Polymorphism) and sequencing were employed to verify each nucleotide change.

Result: MTHFR mutant allele and DHFR deleted allele are present in all Malaysian sub-ethnic groups, case and control. For MTHFR, 40% of mothers for SB children are carrier compared with 25% of control, while 26% of spina bifida children are carrier compared to 14% of control and dismissing uniparental type of inheritance in the case group. For DHFR, almost all investigated samples are a carrier or having a double DHFR deletion. The ratio of carrier and double deletion is 1:7 in spina bifida's children and 1:4 in normal children. A similar ratio is found for the maternal comparison.

Conclusion: Since MTHFR is found in both case and control group albeit higher maternally than their children, its sole correlation with the risk of mother to have spina bifida child is uninformative. The same is true for DHFR. Most probably, spina bifida is a biparental, polygenic and quantitative developmental trait, whereby multiple folic acid metabolic genes play a significantly small but additive role to the final outcome.

PB48

**BCL2/KI67 PROTEIN CO-EXPRESSION IDENTIFIES A SUBGROUP OF DIFFUSE
LARGE B-CELL LYMPHOMA IN A MALAYSIAN POPULATION AND DEMONSTRATES
CLOSE RELATIONSHIP WITH NON-GCB SUBTYPE.**

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Hussin, Noraidah Masir

Introduction: Diffuse large B-cell lymphoma (DLBCL) comprises two molecularly distinct subtypes of germinal centre B cell-like (GCB) and non-germinal centre B cell-like (non-GCB) with the latter showing relatively poor prognosis. DLBCL prognosis is also affected by BCL2 protein expression and tumour proliferation fraction.

Objectives: 1) To analyse BCL2 and Ki67 co-expression in the proliferating cells of DLBCL. 2) To correlate BCL2/Ki67 relationship with its clinicopathological parameters.

Methods: 94 DLBCL cases were immunostained for CD20, CD10, BCL6, MUM1, BCL2 and Ki67 on tissue micro-array. BCL2 and Ki67 co-expression was determined using double-immunofluorescence (Double-IF) labeling.

Results: Immunohistochemistry-based subclassification revealed that 33 patients (35%) were GCB-type and 61 (65%) were non-GCB-type according to Hans' algorithm. Double-IF showed that in 44 cases (47%) there was expression of BCL2 in proliferating cells (BCL2⁺/Ki67⁺) and in 50 (53%) there was lack of BCL2 expression in the proliferating cells (BCL2⁻/Ki67⁺). BCL2/Ki67 co-expression was more frequently seen in non-GCB subtype (31/61, 51%) in comparison to the GCB subtype (13/33, 39%). Although this was not statistically significant ($p=0.289$), it showed a positive trend towards the non-GCB subtype. In addition, cases that co-expressed BCL2/Ki67 were more often extranodal ($p=0.033$) and were associated with B symptoms ($p=0.037$).

Conclusion: We postulated that cases which coexpressed BCL2 and Ki67 would behave more aggressively since expression of the anti-apoptotic marker BCL2 in proliferating cells would prolong tumour cell survival. It would be of interest to explore the clinical implication in DLBCL of the presence and absence of BCL2 in proliferating tumour cells.

High resolution melting analysis of c.-3279T>G mutation in the *UGT1A1* gene among Malay Kelantanese infants with neonatal hyperbilirubinemia

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Background: Overproduction of bilirubin that lead to a limited ability of its excretion was found to be a major risk factor for neonatal hyperbilirubinemia at presence. A previous study reported that c.-3279T>G mutation of the *UGT1A1* gene caused the reduction of transcriptional activity by 62% from the normal value and other studies showed that the mutation contributes to the development of neonatal hyperbilirubinemia.

Objectives: To determine the presence of c.-3279T>G mutation in the promoter region of the *UGT1A1* gene among Malay Kelantanese infants with and without neonatal hyperbilirubinemia using high resolution melting (HRM) analysis.

Method: The DNA samples were obtained from whole blood and subjected to the HRM analysis for mutation screening (n=50 samples of non-hyperbilirubinemia infants and 54 samples of hyperbilirubinemia infants). A direct sequencing analysis was performed to confirm the findings.

Result: This study revealed that from 54 hyperbilirubinemia infants, mutation presence in 36(66.7%) subjects with 21(38.9%) subjects carrying the homozygous mutation. Meanwhile for the non-hyperbilirubinemia group, 7(14%) out of 50 subjects were homozygous and 20(40%) were heterozygous for the c.-3279T>G mutation. There was a statistically significant difference between the hyperbilirubinemia and the non-hyperbilirubinemia groups (p-value=0.017).

Conclusion: The presence of c.-3279T>G mutation of the *UGT1A1* gene were identified in the Malay Kelantanese infants with and without neonatal hyperbilirubinemia using HRM analysis.

PB50

An *in vitro* study on the influence of protein nitration on platelet adhesion in platelets isolated from patients with liver cirrhosis

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Introduction: Liver cirrhosis is associated with bleeding complication wherein a defective platelet function has been reported. Platelets are anucleated cells that aggregate, change shape, and release the granular contents upon activation resulting in blood coagulation. Nitric oxide (NO) -mediated stress is known to influence platelet functions. Nitration of proteins in platelets is an important pathological consequence that involves oxidative and nitrosative stress.

Objective: The aim of the present study was to evaluate whether protein nitration in platelets contributes for one of the consequence of the functional disturbance in cirrhosis platelets.

Methods: Forty liver cirrhosis patients grouped as bleeders and non-bleeders admitted in Stanley Medical College and Hospital were recruited in the study. Age- and sex-matched healthy volunteers were used as controls. Platelets were isolated from the subjects and the platelet adhesion capacity was measured by ELISA method. Levels of nitroproteins, NO, and NO synthase (NOS) activity in platelets before and after activation were measured. Extent of expression of NOS was also studied.

Results: A significant elevation ($p < 0.001$) in the levels of NOS, NO and nitroproteins in whole platelets, platelet cytosol and platelet cytoskeleton was observed in cirrhosis patients. The variation was highly significant in bleeders when compared to non-bleeders and normal subjects. Percentage elevation of nitroproteins in cytosol was greater than that of cytoskeleton. NOS expression was extensively high in cirrhosis patients.

Conclusion: Protein nitration, a consequence of NO-mediated stress due to the upregulation of NOS activity in platelets seems to influence defective platelet adhesion in liver cirrhosis

PS1

Immunopathological role of Bcl2, P53 and IL8 expression in pathogenesis of H.pylori CagA positive versus CagA negative associated antral predominant non atrophic gastritis in Iraqi patients

Ali Ibrahim Ali AL-Ezzy

Introduction: Antral-predominant non-atrophic gastritis (APNG) is the most common expression of H pylori gastritis characterized by absence of atrophy, a moderately to severely inflamed antrum and a normal to mildly inflamed corpus. **Objective:** To determine the role of Bcl2, P53 and IL8 expression in pathogenesis of APNG according to H.pylori CagA gene expression. **Methodology:** Forty five (APNG) patients and (20) control were chosen prospectively. Multiple antral biopsies were taken for rapid urease test .Slides prepared from paraffin blocks stained with haematoxylin-eosin for histopathology. One section was stained Immunohistochemically for bcl-2.Biotinylated DNA probes for human IL8, P53 and H.pylori Cag A used for detection of their expression in gastric epithelia using ISH technique. Pearson correlation and T-test used for data analysis. **Results:** Insitu CagA was detected in (74.35%) of APNG cases and has positive correlation with IL8, P53 and lymphocytes grade. No significant difference in Bcl2 expression among Cag A positive and CagA negative CPNG cases .Significant differences in IL8, P53, PMNs and lymphocytes grades were detected among Cag A positive and CagA negative CPNG cases.IL8 expression has positive correlation with P53, lymphocytes and PMNs grades.P53 expression has positive correlation with lymphocytes and PMNs grades. **Conclusions:** Bcl2, p53 and IL8 play vital role in Immunopathology of APNG depends on CagA expression

PS2

A Young Woman With Morphologic Diagnosis Of Xp11.2 Translocation Renal Cell Carcinoma: A Case Report And Review Of The Literature

Wan Faiziah Wan Abdul Rahman, Angeline Madatang, Azhar Amir Hamzah

INTRODUCTION: Xp11.2 translocation renal cell carcinomas (RCCs), a recently recognized distinct subtype, are rare tumours predominantly reported in children and only few of adult cases. They are characterised by various translocations involving chromosome Xp11.2, resulting in transcription factor E3 (TFE3) gene fusion. This tumour is previously believed to be rather indolent, however there have been increasing recent reports of an aggressive clinical course in adult cases. **CASE REPORT:** We present the first case of Xp11.2 translocation RCC diagnosed at Hospital Universiti Sains Malaysia (HUSM) in a 21-year-old female who accidentally found an asymptomatic mass at left lumbar. Left radical nephrectomy was performed and revealed a large well-defined solid mass arising from the lower pole of the kidney with invasion of posterior abdominal muscles. Gross examination of the tumour showed a light tan, capsular penetrating mass with haemorrhagic and necrotic cut surface. Microscopically, the tumour is characterised by mixed papillary nested/alveolar growth pattern with clear and/or eosinophilic voluminous cytoplasm. Psammoma bodies were detected. **CONCLUSION:** Xp11.2 translocation RCC is a rare tumour with peculiar morphogenetic characteristic and biological behaviour. Morphologic distinction is very important apart from cytogenetic study and/or immunohistochemistry for TFE3 protein in confirming the diagnosis. Discussion on the morphology and the clinical course along with review of literature is included in this report.

PS3

Liposarcoma with various non-lipogenic components

Thin Thin Win @ Safiya Yunus, Mazita Ismail

Introduction: Histopathological subtype of liposarcoma is one of the factors to assess biologic behavior of the tumour. It can be challenging for histopathologists when it is composed of more than one histological subtype or non-lipogenic dedifferentiated components. **Case report:** A case of liposarcoma, with combined lipogenic and various non-lipogenic components was reported. The patient is a 57-year-old man with deep seated soft tissue tumour in thigh. Histologically, 30% of tumour showed features of atypical lipomatous tumour, 70% of tumour showed dedifferentiated fibrosarcoma like pattern and malignant fibrous histiocytoma like pattern with abrupt transition in between. **Conclusion:** Thorough sampling is necessary for identification of specific histological subtypes and its combination in liposarcoma. Ancillary immunohistochemistry, cytogenetic and molecular studies may be needed in difficult cases for histological subtyping which can guide to develop new therapeutic approach of targeted therapy.

PS4

Expression of Alpha-MethylAcyl-CoA Racemase (AMACR) and p63 in Differentiating Benign and Malignant Foci of Prostatic Needle Biopsy Specimens

Sh Emilia TS, Shahawiah AW, Mutum SS

Introduction:It remains challenging for pathologists to identify foci of prostate cancer based on minimal materials in needle biopsies. Traditional usage of basal cell marker, p63 as a negative indicator to confirm the malignancy might lead to the false negative results. The finding of an over expression of Alpha-methylacyl-CoA racemase (AMACR) gene in prostate cancer has led to the emerging of AMACR as a new cancer cells positive marker.

Objective:We test the advantage of combining these two markers to differentiate between the benign and malignant foci in prostate needle biopsy. **Method:**A cross-sectional study was conducted on 92 benign foci, 106 malignant foci, 34 foci of high-grade prostatic intraepithelial neoplasm (HGPIN) and 36 foci of atypical glands from prostatic needle biopsy archived specimens. **Result:**AMACR protein was expressed in 72/106 malignant foci supported by absence of basal cells while 7/106 foci were considered as HGPIN with positive for both markers. Four foci were found to be over diagnosed as malignant, demonstrated positive p63 and negative AMACR. HGPIN foci showed 19/29 foci were negative for AMACR staining and 10/29 foci were positive. Fourteen benign foci showed strong positivity for AMACR staining. **Conclusion:**Enhancement of prostate cancer diagnosis using AMACR has complementing the traditional marker, p63. It helps the pathologist to achieve definite diagnosis for ambiguous lesions and cancer mimickers.

PS5

Family Members Satisfaction with Patients Care in High Dependency Unit and Cardiac Intensive Care Unit

Nur Syakilah Che Mood@Mahyiddin, Rahimah Mohd Anshari & Wan Aasim Wan Adnan

Introduction: Family members' satisfaction has become an important measurement in determining the quality of care of patients in the critical care area, **Objectives:** To determine the satisfaction level of family members regarding the care delivered to patients in a critical care setting. **Methods:** This is a cross-sectional study of 30 family members who accompanied patients during intensive care admission. The study was conducted in a critical care setting in a high dependency unit and cardiac intensive care unit at Hospital USM. The data was collected from October 2012 to January 2013. The validated Critical Care Family Satisfaction Survey (CCFSS) Malay version was used to measure family satisfaction in addition to the collection of demographic data. The statistical analysis used a descriptive approach. Ethical approval was obtained prior to data collection. **Results:** Respondent rate was 100% and a majority of the respondents were female: 23 (76.7%). Mean age was 35.67 (SD=12.83) and the score of overall satisfaction level was 78.80 (SD=13.88). The Cronbach's alpha was 0.96. A majority of the respondents, 19 (63.3%) were satisfied with the care. **Conclusion:** This study showed that a majority of family members were satisfied with the care that was provided in a critical care setting at HUSM. It also showed that families play an important role in giving support and hope to patients.

PS6

Gene expression profiling of high grade and low grade gliomas

Shalini Ponnusamy, Muhamad Farid Zulkifle , Stephen Ponampalam, Zubaidah Zakaria

Introduction: Brain cancer is the 10th most commonly occurring cancer in Malaysia (NCR.2006). According to global statistics, gliomas are the most commonly occurring primary tumours. Malignant gliomas are highly recurrent and incurable. Common differentially expressed genes found are upregulation of VEGF, EGFR, ELTD1, IDH1 and IDH2 and downregulation of p53, PTEN. Current knowledge underlying the molecular oncogenesis of gliomas is lacking, prompting investigation to identify new markers for prognostic prediction and increasing treatment options. **Objective:** To investigate the gene expression profiles between high grade and low grade gliomas to identify potential tumour biomarkers that can predict the prognosis and improve treatment options. **Methods:** Blood samples from 20 patients aged 18 years and above were collected and total RNA were extracted. Ten samples were from high grade gliomas and the remaining from low grade. Sample grades were grouped according to the 2003 World Health Organization (WHO) classification system for gliomas. The samples were analysed using Two-colour Agilent Microarray Platform for whole Human Genome (4x44K) microarray chip according to the manufacturer's instructions. Samples and Universal Human Reference were labelled with Cy5 CTP and Cy3 CTP. Microarray data was analysed by Gene Spring 12.1 V software using paired T-test at $p < 0.01$. **Results:** The gene expression profiles indicated that 2,439 genes were differentially expressed with more than 2 fold change ($p < 0.01$) between the high grade and low grade tumours. 435 genes were upregulated and 2004 genes were downregulated in low grade tumours. Potential genes identified were TPSG1, CDKIIB, HMGA1, KIF1B, PIAS, S0S1, BP300, SMARCE1, YB1 and CDC42. The gene expression data will be validated by quantitative real time polymerase chain reaction. **Conclusion:** This study has identified potential biomarkers for prognostic prediction and treatment options.

PS7

Assessment of Cell Proliferation of Human Osteosarcoma Cell Line using Alamar Blue Assay and Live Cell Imaging

Marahaini Musa, Thirumulu Ponnuraj Kannan, Shyamoli Mustafa

Introduction: The cancer cell differs from the normal cell in a sense that it is aberrantly regulated. Failure to regulate functions of biomolecules that are necessary for proliferation among many other cell-type-specific functions results in an altered phenotype and cancer. **Objective:** To assess the proliferation of human osteosarcoma cell line (U2OS) using Alamar Blue and live cell imaging. **Methods:** Standard curve for U2OS cells was produced by incubating different counts of cells (391, 781, 1563, 3125, 6250, 12500, 25000, 50000) for 24 hours before addition of Alamar Blue dye and absorbance reading at 570 and 600 nm. For cell proliferation study, 1×10^3 of U2OS cells were seeded in 96-well plate and cultured for 10 days. Absorbance readings were recorded once in every two days (day 2, 4, 6, 8, 10) and the percentage of Alamar Blue reduction was counted. The cell division process was studied using live cell imaging for 48 hours employing fluorescent expression systems. From both Alamar Blue assay and live cell imaging, population doubling time (PDT) was determined. **Results:** The percentage of Alamar Blue reduction increased from day 2 to 10 which indicated the increase in the number and proliferation activity of U2OS cells. The PDT of U2OS cells determined based on Alamar Blue assay was 29.15 hours. Through live cell imaging, the PDT of U2OS cell was 32 ± 2 hours. **Conclusion:** U2OS cells proliferate over days based on Alamar Blue assay and live cell imaging with an approximate PDT of 29 hours.

PS8

Transcriptomic Analysis of Non-Small cell Lung cancer Stem Cells

Zakaria, N, Yusoff, NM, Zakaria, Z, Yahaya, B

Introduction: Initiation, propagation and metastasize of cancer cell is hypothesized to be driven by sub-population of cancer cell known as 'cancer stem cell' (CSC) which possess characteristics of multipotent stem cell such as self-renewal and resistant to chemotherapy. Understanding of the transcriptomic regulation of cancer stem cells may have significant implications in the understanding of cancer biology and for the design of novel treatments targeted toward these cells. **Objective:** This study was designed to understand the transcriptomic composition and signalling cascades of non-small cell lung cancer stem cell and their roles in the development of lung cancer. **Methodology:** Putative lung CSCs were isolated from NSCLC lines (A549 and H2170) based on expression of CSC surface marker, CD166, CD44 and EpCAM using Fluorescence Activated cell sorter (FACS). Affymetrix Microarray data of isolated putative lung CSCs analyzed using GeneSpring software (Agilent Technology) were used to examine transcriptomic profile associated with cancer and stem like properties. **Result:** Bioinformatics analysis using Database for Annotation, Visualization and Integrated Discovery (DAVID) demonstrated that significantly regulated genes ($p < 0.05$, $FC > 2.0$) in putative lung CSCs involved in cell proliferation, angiogenesis, migration, apoptosis and in extracellular matrix (ECM) interaction pathway. **Conclusion:** We found that down-regulated genes associated with ECM-interaction like Laminin and Integrin could be a target for future anti-cancer therapy.

PS9

Evaluation of HLA class II alleles on helicobacter pylori infected patients in husm

Nurul Khaiza Y, Noorizan HAM, Nor Hazrini H

Introduction: *Helicobacter pylori* is a known pathogen involved in the development of digestive disease such as peptic ulcer, atrophic gastritis and gastric ulcer. Disease outcome is the result of the complex interplay between the host and the strain diversity of *H. pylori*. HLA as a part of host factor play particular roles in host immune responses to bacterial antigens. **Objective:** To evaluate the HLA-DRB1 and HLA-DQB1 alleles on patient with *H.pylori* infection. **Methodology:** We selected 68 malay patients who had undergone gastroduodenoscopy for gastrointestinal symptoms. Out of this only 16 were diagnosed of infection through histological evaluation whereby *H.pylori* were not detected histologically in the rest 52 patients. HLA typing of Class II panel was performed using PCR-SSP (Sequence Specific Primer)method. **Results:** From our *H. pylori* infected cohort; 62.5% were female where as in the non infected cohort, 55.8% were male. Both cohort showed increase frequency in HLA-DRB1*12 (43.8% vs 59.6%)and HLA-DRB1*15 (37.5% vs 48.1%) ; HLA-DQB*03 (62.5% vs 73.1%) and HLA-DQB*05 (50% vs 48%). However results were not significant statistically. **Conclusion:** The interplay between host immune gene polymorphisms, bacterial virulence factors, environmental conditions and duration of infection may thus play a more important role in the outcome of *H. pylori* infection than immunogenetic factors alone.

PS10

Association Of Ki 67 Score And Bcl-2 Status With The Histological Grading Of Cervical Adenocarcinoma: An Experience With 41 Cases

Zahrah Tawil, Nor Hayati Othman, Mohd Dulkhairi Mohd Rani, Rosna Yunus

INTRODUCTION: The incidence of adenocarcinoma of the cervix is increasing worldwide. It accounts for up to 25% of all cervical carcinomas. The Ki 67 and Bcl-2 has shown some potential in prognostication in cancers, however their uses in cervical cancers have not been explored. This research aims to address the significance of Ki 67 and Bcl-2 expression in adenocarcinoma of cervix and its association with histological grading. **METHODOLOGY:** Paraffinized archival tissue blocks from Histopathology Unit, Department Pathology, Hospital Kuala Lumpur, of confirmed cases of cervical adenocarcinoma in year 2006 to 2010 was retrieved. The blocks were sectioned and stained for Ki-67 and BCL-2. The positive Ki-67 expression stained the nuclei while the positive Bcl-2 expression stained the cytoplasm brown. The score of Ki-67 was then determined. A cut off level to define high and low proliferating tumour was 30% while he Bcl-2 status was positive when >5% of tumour cell are stained [based on previous published studies]. **RESULTS:** A total of 41 cases were identified and used in the study. The youngest patient was aged 23 years old while the oldest patient included in this study was 71 years old. The mean number of the patients diagnosed per year was 8.20 ± 1.84 (mean \pm SD) and majority was in Malays. The mean age of the patients was 48.61 ± 11.33 (mean \pm SD) years old. Majority of the cervical adenocarcinomas were of moderately differentiated (46.3%). The mean value Ki 67 index was 38.15 ± 16.49 (mean \pm SD) % with the majority of adecarcinomas having index between 41% to 50%. Majority of cervical adenocarcinomas were negative for Bcl-2 (87.8%). The histological type was significantly associated with the histological grading (p -value=0.039). There was no significant association between the Ki 67 and Bcl-2 with histological grading. **CONCLUSION:** The histological grading of adenocarcinoma of the cervix had no statistically significant association with Ki 67 index and Bcl-2.

PS11

Idiopathic Thrombocytopenic Purpura with Bilateral Peripapillary, Subhyaloid and Vitreous Hemorrhage

Wan Wei L, Tg Norina TJ, Azma Azalina AA, Zulkifli AG, Zunaina E

A 45 year-old lady with underlying idiopathic thrombocytopenic purpura (ITP) and diabetes mellitus presented to Ophthalmology Department with complained of sudden onset of reduced vision in both eyes for about 3 weeks duration. It was associated with floaters in both eyes. There was no other significant history. Examination revealed visual acuity of 6/36 OD and 6/60 OS. Anterior segment findings were unremarkable. Fundus examination showed bilateral peripapillary, subhyaloid and vitreous hemorrhage, which was more in the left eye. No diabetic retinopathy changes noted. Systemic examination did not reveal any petechiae, bruises or mucosal bleeding. Hematological evaluation was carried out. Her platelet count was $120 \times 10^9/L$ and hemoglobin (Hb) count was 93g/L. Coagulation profile (prothrombin time and partial thromboplastin time) was normal. After consultation by hematologist, she was treated with oral prednisolone starting dose of 50mg daily (1mg/kg/day) and currently on tapering dose. Review at 6 weeks showed spontaneous partial resolving of hemorrhages and slight improvement of vision to 6/24 OU. She was suggested to undergo left eye vitrectomy in view of subhyaloid hemorrhage was just adjacent to the macula but patient has not consented. **CONCLUSION:** ITP usually presented with skin manifestations like bruises or mucosal bleeding. Ophthalmic involvement is rare. Unexplained and suspicious posterior segment hemorrhage should be evaluated for ITP.

PS12

Primary malignant melanoma of the vagina : A case report

Anani Aila Mat Zin, Nur Syuhada Mohd Nafis

A 54- years- old, pre menopause female presented with a mass coming out of vagina with foul smelling vaginal discharge and prolonged vaginal bleeding for 3 months. On vaginal examination there was a fungating mass 5 times 3 cm in sizes with friable greyish tissue and bleed when contact. The mass was flushed to anterior vagina. Pap smear was done and sent for cytology screening. The result of Pap smear was described as carcinoma. Biopsies were done at various sites around cervix, vaginal mass, left vaginal tumour margin and endometrial. Cervical biopsies show no evidence of malignancy, while the endometrial biopsy shows non representative sample. However, the biospy from vaginal mass come out as malignant melanoma. The left vaginal tumour margin also shows tumour involving. The patient was given external pelvic radiotherapy and after completed the radiotherapy a CT scan was done. CT scan shows the malignant has metastasized to lung and liver. Currently patient is under chemotherapy follow up. CONCLUSION: Vaginal melanoma is a very aggressive tumour and the overall prognosis is very poor despite the treatment modality.

PS13

A 7-year retrospective study of the survival rate of fixed partial denture and post & core

Khairulanam Akmal Kamarudin, Toy Eng Tat, Nor Aidaniza Abd Muttlib, Rabihah Alawi, Normastura Abd Rahman

Introduction: The purpose of this retrospective study was to evaluate the success rate and the factors which lead to complications after treatments done by year 5 students. The quality of work done by year 5 dental students USM can be checked through the survival time to determine the success rate of work done. **Methods:** The folders of 144 patients, who had undergone treatments for post and core and fixed partial denture, done by students from January 2004 until January 2011 were analyzed. There were 72 cases of post and core, and 112 cases of fixed partial denture data were recorded. The following parameters were used in the evaluation: date of receiving and completing treatment, location of tooth (upper or lower jaw), type of tooth (anterior, premolar, and molar), and cause of failure (dislodged, periodontal problem, etc). After the data was collected, the survival probability was assessed for each year using Kaplan-Meyer analysis. **Result:** The calculated survival rate for post and core for duration of 1 year was 94.44% and 94.29% during second year. It has 100% success rate for other years. For fixed prosthesis, the survival rate for duration of 1 year was 97.6%, while for survival rate of 7 years was 70.7%. With most common cause of failure was due to dislodged prosthesis. Molar had highest failure rate (45.4%), follow by premolar (27.3%) and anterior tooth (27.3%), and with tooth in posterior is higher rate for failure (54.6%). **Conclusion:** Post and core has high survival rate over a period of 7 years, perhaps is due to a strict criteria of case selection that was set by the lecturers before students can proceed with the treatment and due to closed supervision during the treatment procedure. Failure that occurs within 1 year are most likely due to clinical error, as compare to fixed prosthesis which has high survival rate on early time but will reduced throughout the year.

PS14

Young Age Presentation Of Orbital Metastasis Of Renal Cell Carcinoma

Chee Kuen W, Adil H

Introduction: Renal cell carcinoma (RCC) has been reported to account for over 80% of malignant renal tumors. RCC is reported to occur twice as often in men compared to women and high incidence in individuals in the sixth and seventh decades of life. Due to relatively asymptomatic nature of presentation, 25-30% of patients has metastatic disease at time of diagnosis. Metastasis can occur at virtually any site of the body, however orbital metastasis has rarely been reported. We would like to report a case of young age presentation of RCC and orbital metastasis. The case reports an 18 year old man, had been diagnosed with right renal cell carcinoma 1 year ago with subsequent nephrectomy performed. He presented with right eye proptosis and reduced vision for 1 month duration. The computed tomography scan of the orbit and brain revealed a lesion arising from the greater wing of right sphenoid and causing right optic nerve displacement. Orbital radiotherapy was planned but treatment defaulted. Four months later, patient presented with huge right orbital mass with destruction of the eyeball. **Conclusion:** In conclusion, even though orbital metastasis of RCC in young age is rare, we should think of this when dealing with an aggressive orbital tumor which carries a grave prognosis.

PS15

**Primary Hypertrophic Osteoarthropathy Incomplete Form and its Medical
Management- a Case report & Literature review**

Ram Gautham Ganesan

Primary Hypertrophic Osteoarthropathy (PHOA) or Pachydermoperiostosis (PDP) is a rare genetic disease with varying presentations. The exact incidence and prevalence of HPOA are still unknown. At least 204 cases of PHOA have been reported. A prevalence of 0.16% was suggested by Jajic et Jajic. Out of this 54 per cent of cases are found to be of the incomplete variety, making this disease a rare one. A 22 years old male was referred to our hospital as a case of Rheumatoid arthritis, not responding to conventional NSAIDS and steroids. On evaluation he was found to be suffering from PHOA (incomplete form) and reasonable efforts were taken to rule out it being secondary to any other diseases (SHO). He was successfully treated with NSAIDS and oral bisphosphonates- (alendronate) for a period of 6 months with favorable response and followed up for a period of 24 months without any recurrence of symptoms or development of any other illnesses. The natural history of this rare disease and the management part is discussed in this article.

PS16

Ocular Bartonellosis - Case Report

Raihan AR, Zunaina E, Adil H

Introduction: Cat scratch disease (CSD) is a self-limiting disease in immunocompetent patients. It is caused by infection of *Bartonella hensellae* after contact with infected cats. Typical presentation is fever and lymphadenopathy. Rarely, CSD presentation with ocular bartonellosis manifest as Parinaud's oculoglandular conjunctivitis and intraocular inflammation (uveitis), in the form of neuroretinitis or retinochoroiditis. This case report describes a serologic verification case of ocular bartonellosis. **Case Report:** This is an observational case report of a 14 year-old boy who presented in ophthalmology clinic, Hospital Universiti Sains Malaysia with bilateral panuveitis with neuroretinitis. The boy revealed history of contact with cat at home. Serology analysis showed strongly positive Ig M and Ig G for *Bartonella hensellae*. After 6 weeks of systemic azithromycin therapy and oral prednisolone, there were full recovery of visual acuity and resolution of macular edema. **Conclusion:** Vision threatening ocular manifestation of CSD can be improved with systemic antibiotic and oral steroid.

PS17

**Prevalence of blood transfusion in women undergoing caesarean section in
Hospital Universiti Sains Malaysia**

Noorulhuda Mohd Mokhtar, W Haslindawani W Mahmood, Rapiaah Mustafa, Shah Reza
Johan Noor

Introduction: Transfusion medicine is progressing rapidly with time. The increase in blood borne diseases and other associated complication of blood transfusion required medical practitioner to be fully informed of the risk and benefits of blood transfusion. The transfusion rate in caesarean section ranges between 1.1-7.8% in developed country and up to 25.0% in developing country. Therefore in this study we want to know the prevalence of blood transfusion in caesarean section. The data would reflect current transfusion practice and might be useful in clinical counseling, preoperative planning and eventually reduces the risk of transfusion. **Objectives:** The study is to determine the prevalence of blood transfusion in women underwent caesarean section in Hospital Universiti Sains Malaysia. **Methods:** This is a cross sectional study referring to 572 pregnant women who underwent caesarean section in HUSM from July to December 2012. A comprehensive pre designed proforma was filled in for each woman. Data related to social demographic characteristic, surgical events, indication of transfusion, estimated blood loss and number of unit transfused were recorded. SPSS Software Version 18 was used for the statistical calculation. **Results:** A total of 572 caesarean sections were studied, 33 patients (5.8%) received blood transfusion. The indications for the transfusion were antepartum hemorrhage (21.2%), acute fetal distress (21.2%), malpresentation (18.1%), obstructed labour (15.2%), macrosomic baby (9.1%), previous 2 or more repeat cesarean sections (9.0%) and others (3.0%). About 72.2% of those who transfused had emergency caesarean section. **Conclusion:** Overall, the risk of transfusion in association with caesarean is low. It is concluded from current study that main indication for blood transfusion is antepartum haemorrhage which were mainly because of placenta praevia and abruptio placenta.

PS19

CYP2E1 Polymorphisms and Risk Factors to Gastrointestinal Cancer in Malaysian

Eric Tzyy Jiann Chong, Chong Cin Lee, Kek Heng Chua, Jitt Aun Chuah, Ping Chin Lee

Introduction: Gastrointestinal cancer (GIC) ranked top of the cancer-related mortality with rate of 4.71 per 100 000 populations in Malaysia. High number of incidences and mortalities of GIC in Malaysia suggested that finding a biomarker for early detection of GIC is crucial. CYP2E1 RsaI and DraI polymorphisms have been reported to increase the risk of GIC in many populations but remain unclear in Malaysian. **Objective:** To investigate the risk factors for GIC, with particular emphasis on CYP2E1 RsaI and DraI polymorphisms in Malaysian. **Methods:** DNA was extracted from the peripheral blood of 175 GIC patients and 520 healthy blood donors by alkaline lysis method, subjected to polymerase chain reaction followed by restriction fragment length polymorphism (PCR-RFLP) using RsaI and DraI restriction enzymes. The resulting fragments were analysed using agarose gel electrophoresis and confirmed using direct sequencing. **Results:** This study revealed that elderly (>40 years old) and female were predominant to GIC than male in Malaysian at which female had a 2.22- and 1.58-fold higher risks to stomach and colorectal cancers, respectively, as compared to male. One possibility is due to factor such as hormone change during menopause. Besides, Chinese showed a greater risk towards GIC than Malay, Indian and KadazanDusun in this study. The variant c2 allele and carrier with at least one c2 allele of RsaI polymorphism revealed higher risk to GIC significantly with OR (95% CI) of 1.38 (1.02 – 1.86) and 1.45 (1.02 – 2.07), respectively. All of the associations in DraI polymorphism showed slightly lower risk to GIC but none of them was statistically significant. **Conclusions:** This study suggests that age, gender and ethnicity influence the risk to GIC, with particular female had a higher risk to GIC than male in Malaysian. Besides, the c2 allele increased the risk to GIC significantly, which may be served as a biomarker for GIC in Malaysian but future research by including the gene-environmental interaction is needed.

PS20

A Comparative Study of Patient Controlled Analgesia (PCA) Dexmedetomidine Combined with Morphine versus PCA Morphine alone in Postoperative Major Orthopaedic Patients

Siti Baiduri Busrah, Shamsul Kamalrujan, Gnandev Phutane

Introduction: Managing acute postoperative pain is a major challenge in anaesthesia. Advocating multimodal analgesia is a form of strategy to prevent adverse effects related to the analgesia drugs. Dexmedetomidine a α_2 -adrenoceptor agonists has gained its popularity for its use as analgesic, sedative, anxiolytic and sympatholytic agent. **Objective:** To determine whether adding dexmedetomidine to intravenous patient-controlled analgesia (PCA) morphine could improve analgesia while reducing morphine related side effects. **Methodology:** Prospective study was done on 56 patients undergoing elective major orthopaedic surgery under Standard balanced general anaesthesia. Postoperatively patients were randomized into 2 groups receiving either PCA morphine 1 mg plus dexmedetomidine 5 μ g/mL or PCA morphine 1 mg/mL alone. Postoperative systolic, diastolic blood pressure and heart rate, sedation score, pain score, respiratory depression, total morphine requirement and side effects if any over 24 hours period of PCA use were recorded. Following completion of study, patient's satisfaction towards acute pain service offered and postoperative anxiety level were recorded. **Results:** There was no difference in demographics. The blood pressure changes, respiratory rate, pain score, patient's satisfaction and anxiety level were similar in both group ($p > 0.05$). There was significant difference in heart rate during the first 4 hours and sedation score at 1st and 6th hour postoperatively. The morphine requirement in PCAMD group was lower compared to PCAM group (19.4 ± 13.1 vs 32.6 ± 13.6 mg). There was a significant difference in the incidence of nausea and vomiting in morphine group ($p = 0.001$) and dry mouth in dexmedetomidine group ($p = 0.001$). Patient's satisfaction and postoperative anxiety were found to be similar in both groups. **Conclusion:** Dexmedetomidine as an adjunct to morphine in PCA reduced the total morphine requirement by about 40% and also reduces the postoperative nausea and vomiting. This observation can be applied in clinical practice in postoperative patient controlled analgesia.

E-POSTERS

EP1

Knowledge On Domestic Violence Among Malay Wives In Kota Bharu, Kelantan

Nik Normanieza Nik Man

Domestic violence (DV) defined as behaviour in an intimate relationship that cause physical, sexual or psychological harm, include physical aggression, sexual coercion, psychological abuse, and controlling behaviours. The objective of this study was to describe the knowledge of DV among Malay wives in Kota Bharu, Kelantan. A cross-sectional study was conducted among 677 Malay wives using a self administered validated questionnaire. Descriptive statistic was performed using SPSS version 19. The knowledge items with the lowest percentages of know responses from the wives were: do you know that the age of husband and wife can be a cause of DV (79.5%), do you know that the lower or higher education of wife can be a cause of DV (68.6%), do you know that not having children can be a reason for DV (79.1%), do you know that too many children can be a reason for DV (79.0%), do you know that husband's history of experiencing violence during childhood can be a reason for DV (72.5%), do you know that if you are abused, you can get help at welfare department? (71.7%), do you know that if you are abused you can call online 15999 (66.1%) and do you know of the Domestic Violence Act 1994 (61.8%). The mean knowledge score was 27.9 (SD 6.63) revealed that 69.0% women had good knowledge on DV whereas 31.0% had poor knowledge on DV. In conclusion, more health educations on DV should be given to women to ensure they realized many reason of DV, more places to get help during violence and the use of Domestic Violence Act 1994.

EP2

The Accuracy Of The Bryzicki Equation In Predicting 1RM From NRM On Dominant Elbow Flexors Of Young, Moderately Active Females

Ida Hasni Shaari, Maria Justine, Vikram Mohan

Background: One-Repetition Maximum (1RM) test is normally used to identify the maximal effort produced by muscle or muscle group during one full joint range of motion. However, this test was considered time consuming when therapist has to attend a large number of patients at one time. Therefore, an equation was developed to overcome this problem which could reduce the risk soft tissue injury. Thus, the aim of this study was to evaluate the accuracy of the Bryzicki equation in predicting 1RM from nRM.

Method: Ten moderately active female participants (mean±SD age= 30.07±6.45 years) were recruited. Participants were subjected to performing active elbow flexion and extension for 1RM and nRM trials in 5 minutes. This was followed by performing 1RM test or nRM test. In between two tests, participants were given a minimum one hour rest.

Findings: The t-test shows a significant difference between the 1RM and nRM tests ($p < 0.05$). The Bland Altman test shows that the range of standard deviation displayed was $SD \pm 1.96$ with a negative value of -2.5 and positive value is 0.5.

Interpretation: There is a significant difference between the weight used for 1RM and nRM. The findings indicated that the Bryzicki equation may overestimate or underestimate the weight used to determine the load for strength training programme.

EP3

Case Study: Fatal Poisoning By Malathion

Faridah Mohd Nor, Mohd Swarhib Mohamed

This case of interest depicted an adult female, who worked as a housemaid. She had consumed a bottle of pesticide and was found dead at home. She was believed to have some financial problem, in which she was in debt with her employer. She had tried to escape, but was found later by her employer. Autopsy showed some whitish froth coming from her nostrils. Further discussion will reveal the autopsy findings and histologic features, which is a rare finding in this type of poisoning.

EP4

Systemic Lupus Erythematosus With Autoimmune Hemolytic Anaemia : A case Report

Wan Majdiah Wan Mohamad, Che Maraina Che Hussin, Wan Suriana Wan Ab. Rahman,
Wan Zuraida Wan Ab. Hamid

Systemic lupus erythematosus (SLE)-associated autoimmune hemolytic anaemia (AIHA) is common in clinical practice. We report a case of 52 year old Malay lady diagnosed with SLE since the age of 30, currently developed AIHA secondary to SLE. Previously she had recurrent admission due to anaemia. Clinical examination revealed she was pallor. No signs of active bleeding or hepatosplenomegaly. Haematological and serological studies disclosed evidence of AIHA with underlying SLE with presence of high titer of antinuclear antibody (ANA) and double stranded deoxyribonucleic acid (dsDNA). The SLE-associated antibody may target the antigenic components which are shared by red cells in the peripheral blood. Therefore the SLE patient may present with sign and symptoms of AIHA.

EP5

A Severe α -Thalassaemia Due To Compound Heterozygosity For Rare Codon 59 (GGC>GAC) With IVS I nt I (G/A) Mutations In α 2-gene

Hafiza A, Tang YL, Raja Zahratul Azma Raja Sabudin , Azlin I, Loh CK, Hamidah A, Zarina AL, Ainoon O.

Non-deletional mutation of codon 59 (GGC>GAC) of the α -globin gene results in a highly unstable haemoglobin (hb) molecule, Hb Adana. Carriers are usually asymptomatic with thalassaemia red blood cell indices. However, when combined with other α -globin gene mutations, the resultant phenotype is usually more severe than the deletional forms. The IVS I nt I (G/A) mutation in α 2-gene is a recently found mutation believed to cause α -thalassaemia by preventing normal splicing of the pre-mRNA. We present a case of compound heterozygosity of these two rare mutations in a 6-year-old boy who presented with anaemia since the age of 15 months old and required two monthly blood transfusions since then. His laboratory investigations revealed haemoglobin 5.8g/dl, RCC 2.78 x 10¹²/L, MCV 65.9 fl and MCH 20.9 pg and marked red cell anisopoikilocytosis and numerous target cells on peripheral blood film. Hb analysis by high performance liquid chromatography resulted HbA2 and HbF levels of 3.7% and 3.3% respectively. DNA analysis for α -thalassaemia revealed compound heterozygosity for Cd59 (GGC>GAC) and IVS I nt I (G/A) mutation in α 2-genes. To the best of our knowledge, this is the third reported case involving IVS I nt I (G/A) mutation in α 2-genes and furthermore, in this case, it is co-inherited with the hyperunstable Hb Adana, which resulted in a severe α -thalassaemia phenotype.

EP6

A Rare Case Of Haemolytic Disease Of The Foetus And Newborn Due To Anti-Jk^b Antibody

Rabeya Yousuf, Chooi Fun Leong, Cheah Fook Choe

Introduction: Anti-Jk^b is a clinically significant antibody of Kidd blood-group system that can cause haemolytic transfusion reaction and rarely haemolytic disease of foetus and newborn (HDFN). We would like to present a rare case of HDFN due to anti-Jk^b and to our knowledge this is the first reported case in Malaysia.

Case report: A 35-year-old woman, gravida-3, para-2 delivered a full-term baby girl who became jaundiced within 4-hours of birth. Mother's antenatal history was unremarkable with no transfusion history; however no antenatal screening for red cell alloantibody was performed. Her last antibody screening was negative at the time of delivery of her 2nd baby in year 2009. Laboratory investigations of the baby showed: bilirubin 161umol/L, haemoglobin 16g/dl and reticulocyte count 6%. Red cell phenotype was B-Rh-D positive, Jk(a+b+) and Direct Coomb's test was positive. Anti-Jk^b was identified from the baby's red cells eluate. Mother was phenotyped as B-Rh-D positive, Jk(a+b-) and antibody identification revealed anti-Jk^b. A diagnosis of HDFN due to anti-Jk^b was made. The baby responds well to phototherapy.

Conclusion: In alloimmunised patients, anti-Jk^b is well known to cause anamnestic responses in subsequent exposure either by pregnancy or blood- transfusion. The Anti-Jk^b sensitization in this mother could have been initiated after the delivery of her 2nd-baby or developed during current pregnancy. However as antenatal screening was not done, the exact timing of sensitization remained unidentified. We highlight here the importance of proper antenatal follow-up with early blood grouping and antibody screening for all pregnant women for early detection and possibly prevention of HDFN by intrauterine-transfusion for indicated cases.

EP7

Differential Effect Of BCPs Scaffolds On Human Dental Pulp Stem Cells

Sarah Talib AbdulQadera, Ismail Ab Rahmana, Hanafi Ismailb, Thirumulu Ponnuraj
Kannana, Zuliani Mahmooda

Introduction: Dentin tissue engineering is a novel concept to regenerate functional new tissue using human dental pulp cells, bioactive molecules and scaffolds instead of using synthetic filling materials.

Objectives: Because calcium phosphate (CaP) scaffolds have been widely used with osteoblast cells for bone tissue regeneration, it is necessary to investigate the effects of these scaffolds on odontoblast cells for dentin tissue regeneration.

Methods: In this study, three different hydroxyapatite (HA) to beta tricalcium phosphate (β -TCP) ratios of biphasic calcium phosphate (BCP) scaffolds, BCP20, BCP50, BCP80, of mean pore size of 300 μ m and 65 % porosity were prepared from the same starting raw materials at the same sintering temperature. The extracts of these scaffolds were assessed. The alkaline phosphatase activity was measured for the cells cultured with these extracts.

Results: The high alkalinity, more calcium and phosphate ions release that exhibited by BCP20 express high alkaline phosphatase activity compared to that cultured with BCP50 and BCP80 extracts.

Conclusions: These results highlight the effect of different scaffold ratios on the cell microenvironment and demonstrate that BCP20 scaffold can support HDPCs differentiation for dentin tissue regeneration.

EP8

Familial Primary Antiphospholipid Syndrome: A First Report Of Co-occurrence In Three Young Family Members From East Malaysia

Md. Asiful Islam, Wong Kah Keng, Teguh Haryo Sasongko, Wong Jin Shyan, Siew Hua Gan

Introduction: This is the first report on three primary antiphospholipid syndrome (PAPS) patients; two female and one male with the mean age of only 25 years old, all coming from the same family.

Case Report: The family members originated from the East of Malaysia and showed clinical and laboratory criteria consistent with PAPS. Even though three other members of the family also showed possible features of PAPS, only the three members described in this case have been tested and diagnosed with PAPS. All of the patients had deep vein thrombosis (DVT), high levels of IgM and IgG anticardiolipin antibodies (aCL) and received warfarin treatments. One of the patients suffered a left middle cerebral artery infarction and developed DVT during the postoperative period following craniectomy.

Conclusion: To our knowledge, this is the first PAPS case report from Malaysia.

EP9

**Lung Adenocarcinoma: A Rare Presentation With Whole Hemilung Tumour
Consolidation In A Young Patient**

Azzahra N Azman, Meera Mohaideen Abdul Kareem, Zaihan Awang

Introduction: Lung cancer occurs most frequently in the 6th to 8th decades of life and is relatively rare in younger patients of < 50 years old, about 5%–12.5%. Understanding lung adenocarcinoma and bronchioloalveolar carcinoma (BAC) is a challenge as adenocarcinoma consists of a heterogeneous spectrum of histologic subtypes and wide variety of clinical and radiologic presentations. We present a rare case of adenocarcinoma of the lung in a 35-year-old female patient with a whole hemilung consolidated by tumour.

Case Report: 35-year-old woman presented with 2 years chronic cough, weight loss with on and off fever and hemoptysis. CXR, followed by CT showed consolidated left lung with CT angiogram sign, truncation of left main bronchus with a small aerated airway, the “open bronchus sign”. Partially-drained left hemo-hydrothorax and multiple lung mass in right lung.

Pleural fluid and tissue biopsy of whitish adhesion tissue taken during pleuroscopy concluded lung adenocarcinoma, with bronchioloalveolar component

Conclusion: Early, localized, bronchioloalveolar carcinoma is potentially curable; awareness of the radiologic findings in the early stage of bronchioloalveolar carcinoma and of diverse radiologic features of the disease is essential for radiologists. With recent data showing increasing incidence of BAC notably in younger non-smoking women, this diagnosis should be included in the differential diagnostic work-up to prevent delayed diagnosis resulting from a low degree of suspicion of cancer in these patients.

EP10

KAP On Dengue Fever Between Combi And Non-Combi Areas In Tanah Merah, Kelantan

Abdullah Husam A Shukor, Mohamed Rusli Abdullah, Halim Salleh

Introduction: COMBI (Communication for Behavioral Impact) program is a community-based dengue program in Malaysia to prevent and control dengue fever.

Objective: To compare KAP on dengue fever between COMBI and non-COMBI areas in Tanah Merah, Kelantan.

Methodology: A cross-sectional survey was conducted from April to December 2012 by using multistage sampling technique. Structured KAP questionnaire was administered to 140 respondents in Kampung Batang Merbau (COMBI area) and Kampung Rawa (Non-COMBI area). Each answer was given a score. Total KAP score was assessed as good, fair or poor based on Bloom's cut-off point. Data were entered and analyzed using SPSS Statistics 19.

Results: The mean score for knowledge, attitude and practice were higher in COMBI area. However, the differences between mean score were only significant in practice ($p = 0.017$, 95% CI - 0.04, 0.36). Out of 140 respondents, 37.1% were classified as good in COMBI area compared to 20% in non-COMBI area ($\chi^2 = 5.32$, $p = 0.070$). In COMBI area, there were weak correlation between practice and knowledge ($r=0.26$, $p=0.027$), and practice and attitude ($r=0.28$, $p=0.018$). In non-COMBI area, positive correlation was found between attitude and practice ($r=0.27$, $p=0.023$). No significant association between socio-demographic factors and KAPs in both areas.

Conclusions: COMBI program has contributed towards positive behavioural outcome in Kelantan. COMBI program should be implemented in many areas as possible.

EP11

The Prevalence Of Type 2 Diabetes Among Female Cancer Patients in Kelantan

Nur Asyilla Che Jalil, Nor Hayati Othman, Anani Aila Mat Zin

Introduction: World-wide, the prevalence of female cancers including breast and Diabetes Mellitus type 2 is increasing. However, such association is not known in Kelantan population, a state which has one of highest diabetes type 2 prevalence in Malaysia.

Objective: To determine the proportion of breast, cervical, ovarian and endometrial cancer among female with Diabetes Mellitus type 2 diagnosed in HUSM for the period of 11 years.

Methodology: All cases of breast, endometrial, cervical and ovarian carcinoma which have been histologically diagnosed in HUSM from 2000 to 2011 were retrieved from the computerized system in pathology department. Patients' diabetic status were then traced from the hospital medical records. The data were analysed using SPSS 20.0.

Result: A total of 860 cases of breasts, cervical, ovarian and endometrial carcinoma were diagnosed histologically over this 11 year period. Breast carcinoma is the commonest; 437/860 (50.8%) followed by cervical; 159/860 (18.5%), ovarian; 143/860 (16.6%) and endometrial carcinoma 121/860 (14.1%). Out of these, 228/860 (26.5%) were diabetic. Endometrial carcinoma patients showed the highest for being diabetic; 51/121 (42.1%) followed by ovarian cancer 37/143 (25.9%), breast carcinoma 103/437 (23.6%) and cervical cancer 37/159 (23.3%)

Conclusion: There is an association between these four female epithelial cancers with Diabetes type 2, highest among endometrial cancers. This data strengthen the theory that diabetes type 2 is strongly associated with epithelial cancers. Reduction in diabetes prevalence may reduce cancer incidence.

EP12

Species-Specific Prevalence Of Vaginal Candidiasis With Type 1 And Type 2 Diabetes Mellitus Among Women In Sanaa City

Al-mamari. A. G, Sadek Al-hag

Vaginal candidiasis (VC) is a fungal or yeast infection of the vulva and/or vagina. It causes a smelly, thick, white-yellow discharge that might be accompanied by itching, burning and swelling. Vaginal candidiasis is the second most frequent infection of the female genital tract. Diabetes mellitus is a chronic, insidious disease that can affect any organ of the body. One of the problems associated with this condition is infection patients with diabetes mellitus are at increased risk of vaginal candidiasis. The purpose of this study was to determine the prevalence and species distribution of *Candida* species isolated from vaginal candidiasis infection in diabetic and non-diabetic women in Sanaa City. This descriptive – analytic study was performed on 150 diabetic women referred to Al-Thaourah and AL-Gmohore hospitals in Sanaa City. All specimens were diagnosed or examined under direct microscopy and cultured on Sabouraud dextrose agar (SDA) or (YEPDA) media. Complimentary tests such as germ tube test, corn meal agar media, CHROM agar test and sugar fermentation test were carried out to differentiate between the *Candida* species. Minimum inhibitory concentration (MIC) test was performed for positive cases. Patient's clinical history information was collected by a questionnaire. Statistical analysis was performed using the Chi-square test. Of 150 samples tested under all biochemical experiments and culture methods, 62 out of 150 with percentage 42% were infected to vaginal candidiasis. The frequencies of the isolated *Candida* species include *Candida albicans* 33 species with 53%, *Candida glabrata* with 19 species with 31%, *Candida tropicalis* 6 species with 10% and *Candida krusei* 4 species with 6%. Vaginal candidiasis was more prevalent in women infected with diabetes mellitus than ones with non diabetes mellitus women. 11 patients out of 150 patients with percentage 8% of the patients had type I diabetes mellitus and 51 patients out of 150 with percentage 34% of them type II with ratio 18:82 from totally of 62 out of 150 with 42% vaginal candidiasis patients had infected. *C. albicans* was, by far, the most predominant yeast isolates. The culture technique of vaginal discharge not be warranted so we used the microscopic and biochemical tests because are more sensitive in identification of *Candida* species than culture methods. But vaginal culture is indispensable to confirm the diagnosis by microscopic examination.

EP13

Reduction Of Fibrinolytic Markers In Obese Subjects After Participating Weight Loss Program

Norsuhana, O., CheBadariah A.A., W., Zaidah A, Rohana A., J, Wan Suriati, W.N. & Rahimah, Z

Introduction: Obesity is associated with cardiovascular complication that may impair physiologic regulation of coagulation and fibrinolytic activities that induces a prothrombotic state. Several prothrombotic markers have been identified to be harmful and contribute to the complications of this disease. Therefore, effective lifestyle modification is the recommended strategies to reduce weight and the risk of having associated health problems.

Objective: The purpose of this study was to determine the effects of weight loss program on the changes of prothrombotic markers.

Methodology: Assessment was carried out on 28 obese subjects aged 26 to 62 years old. The subjects were involved in weekly weight loss program consisted of exercise (brisk walk and aerobic dance) and 12 modules of nutritional education for 12 weeks duration. Ten ml of blood specimen was drawn from all the subjects. The blood was tested for fibrinogen levels using Clauss method and plasminogen activator inhibitor type-1 (PAI-1) levels using enzyme immunoassay technique (ELISA).

Results: Paired t-test analysis showed there was a significant reduction ($p < 0.001$) of mean BMI from $35.78 \pm 0.82 \text{ kg/m}^2$ (baseline) to $33.22 \pm 0.67 \text{ kg/m}^2$ (post-intervention). There was a significant decline ($p < 0.001$) in fibrinogen level; $3.73 \pm 0.14 \text{ g/l}$ (post-intervention) if compared to baseline ($4.29 \pm 0.19 \text{ g/l}$). Similarly, there was a significant ($p < 0.001$) decrement in PAI-1 from $50.47 \pm 3.99 \text{ ng/ml}$ to $28.60 \pm 2.37 \text{ ng/ml}$ at post-intervention.

Conclusion: This weight loss program is considered a successful intervention program based on the positive findings of cardiovascular risk factors. This is shown by reduced prothrombotic hazard markers in obese subjects.

EP14

Validation Of Malays COPE Inventory Questionnaire

Nurhazalini-Zayani CG, Norsa'adah Bachok, Siti Farhan Ab Rahim, Aniza Abd Aziz

Introduction: Coping mechanism is important to lessen the effect of stress and prevent mental disorders.

Objectives: This study was conducted to determine the construct validity and internal consistency of the Malays translated COPE Inventory questionnaire.

Methods: A cross sectional study was conducted among medical school staff of USM. A total of 247 respondents were randomly selected from the staff list. The three domains and 52 items COPE Inventory questionnaire by Carver et al. 1989 was back to back translated by three independent bilingual individuals and a consensus was made for the final Malay version. Confirmatory factor analysis using AMOS 18.0 was applied. The fitness indexes for construct validity assessment included GFI, CFI, RMSEA and Chisq / df.

Results: The internal consistency was checked by Cronbach's alpha. The mean (SD) age of respondents was 34.71 (9.77) with 61.9% female, 33.6% worked in laboratory, 21.9% administration and 20.6% clerical and 47.8% admitted having stress with one-fifth due to financial constraints. We removed two items in the problem-focused coping domain, two items in the emotion-focused coping domain and one item in the less useful domain to meet the requirement of acceptable factor loading of more than 0.5 and fitness indexes. The Cronbach's alpha for problem-focused coping domain, emotion-focused coping domain and less useful domain were 0.92, 0.87 and 0.85 respectively.

Conclusion: The COPE Inventory questionnaire is a valid instrument for measuring the coping strategies in Malay adults population.

EP15

Antibody Response To Hepatitis B Vaccination In Haemodialysis Patients In Malaysia

Nik Haszroel Hysham bin Nik Hashim, Azreen Syazril bin Adnan

Introduction: Haemodialysis patients are at risks of Hepatitis B virus (HBV) infection due to their need for blood transfusions. Thus HBV vaccination is compulsory in these patients to protect them. However, their poor immunity resulted lower vaccination response compared to the general population.

Objectives: To assess the HBV vaccination response in end stage renal disease patients on regular haemodialysis in private centers.

Methodology: A cross-sectional study was conducted on haemodialysis patients in 6 selected private haemodialysis centres of Peninsular Malaysia, between January 2013 and April 2013. Hepatitis B surface antigen (anti-HBs titre) and antibody levels were obtained and analyzed. Subjects were classified to non-responders (anti-HBs titre ≤ 100 IU/L) and responder (anti-HBs titre ≥ 100 IU/L) based on the anti-HBs titre.

Results: 163 patients were enrolled, 88 (54.0%) were non responders while 73 (44.8%) were responders. Mean anti-HBs titre was 26.82 (SD: 29.60). 36 patients from Besut (Terengganu), 17(47.2%) were non-responders with mean anti-HBs titre of 24.60 (SD: 29.72) IU/L. 32 patients in Pasir Tumbuh (Kelantan), 16(50.0%) were non-responders with a mean anti-HBs titre of 28.0 (SD: 25.02) IU/L. 11 patients in Machang (Kelantan), 6(54.5%) were non-responders with mean anti-HBs titre of 49.83 (SD: 36.32) IU/L. While 33 patients in Batu Pahat (Johor), 18 (54.5%) were non-responders with mean anti-HBs titre of 11.22 (SD: 18.44) IU/L. 18 patients in Pasir Mas (Kelantan), 14(77.8%) were non-responders with a mean anti-HBs titre of 44.7 (SD:31.05) IU/L. 33 patients in Parit Raja (Johor), 17(51.5%) were non-responders with a mean anti-HBs titre of 21.58 (SD: 30.79) IU/L. The variable response maybe due to age, and duration on hemodialysis. However this study is not powered to confirm these factors.

Conclusion: 53% of ESRD patients vaccinated with hepatitis vaccine showed poor response and are not protected to hepatitis B infection.

EP16

The Relationship Between Salivary Cortisol Level And Self-Administered Questionnaires I.E Kessler Psychological Distress Scale (K10), General Health Questionnaire-12 (GHQ-12) And Hospital Anxiety And Depression Scale (HADS)

Nurul Iwani Abdullah, Osman Che Bakar, Ainsah Omar

Introduction: Self-administered questionnaires and salivary cortisol have been widely used in stress assessment. Despite the usefulness of both methods in measuring the stress levels, the relationship between them has not been adequately studied.

Objective: To determine the relationships between salivary cortisol and self-administered questionnaires scores i.e. Kessler Psychological Distress Scale (K10), General Health Questionnaire-12 (GHQ-12) and Hospital Anxiety and Depression Scale (HADS).

Methods: A cross-sectional study was conducted on 147 staff in Faculty of Medicine, Universiti Teknologi MARA Sungai Buloh Campus. Two ml of saliva were collected via passive drool from each subject followed by the administration of K10, GHQ-12 and HADS. Salivary cortisol level was measured using Expanded Range High Sensitivity Salivary Cortisol Enzyme Immunoassay Kit (Salimetrics LLC, USA) and the total scores for each questionnaire were calculated. Data was analyzed using Pearson's product moment correlation coefficient in SPSS software version 16.

Results: No significant correlations were found between salivary cortisol and K10 ($p=0.272$); GHQ-12 ($p=0.360$); HADS-Anxiety scale ($p=0.502$); and HADS-Depression scale ($p=0.363$) scores, respectively.

Conclusion: Present study showed no correlations between salivary cortisol and the K10, GHQ-12 and HADS questionnaires scores.

EP17

**Validity And Reliability Of The Modified Medication Compliance Questionnaire
Amongst Patient With HIV Infection**

Suzana Mustafa, Wan Nazirah Wan Yussof, Norul Badriah Hassan

Introduction: The Medication Compliance Questionnaire (MCQ) has been developed and validated in patients with hypertension. Modifications and revalidation are certainly required before it can be used in patient with HIV

Objectives: The aims of the study are to modify the MCQ and to evaluate its validity and reliability in patients with HIV.

Methodology: This cross-sectional study was conducted in the Retroviral Disease Clinic, Hospital Raja Perempuan Zainab II, Kota Bharu, Kelantan, Malaysia. The scale of the MCQ was modified from five-point Likert's scale to 0-100 point scale. The modified MCQ for assessment of medication adherence was self-administered by patients. For test-retest analysis, patients were asked to complete the MCQ again after one week. Internal consistency was measured by cronbach's alpha and test-retest reliability was assessed using single measure intra-class correlation coefficient.

Result: A total of 60 patients completed the questionnaires. Majority were Malays with the mean age of 37 years (SD \pm 6.74). The rate of medication adherence was 93%. Internal consistency or cronbach's alpha was 0.6 and test-retest reliability value was 0.8 ($p < 0.001$).

Conclusion: The modified MCQ is a valid and reliable instrument for measuring adherence in patients with HIV.

EP18

Emergence And Persistence Of Philadelphia Negative And Trisomy 8 Cells In Chronic Myeloid Leukemia Patient Treated With Imatinib

Ruzi Hamimi Razali, Nazihah Mohd Yunus, Hashima Hashim , Norhidayah Ramli, Nurul Alia Mohd Naw, Siti Mariam Ismail, Nik Mohd Zulfikri Mat Zin, Rosline Hassan, Ilunihayati Ibrahim, Ravindran Ankathil

Introduction: Trisomy 8 is frequently reported in myeloid lineage disorders and also detected in lymphoid neoplasms suggesting its role in neoplastic progression in general. Here, we report a case of chronic myeloid leukemia (CML) patient with Philadelphia chromosome positive (Ph+) at diagnosis and has been followed during Imatinib therapy.

Case report: A 48 years old Malay lady was diagnosed to have Ph positive CML in August 2004. She presented with lethargic, loss of appetite, and hepatosplenomegaly. She was treated with Imatinib 400 mg OD. Cytogenetic follow up of bone marrow showed presence of Philadelphia chromosome in 76% of the metaphases and in 14% of the metaphases showed Philadelphia chromosome with additional chromosome abnormalities (ACA). Eventually, during further cytogenetic follow-up Ph chromosome clone was reduced and totally disappeared but ACA, trisomy 8 is persisting even after nine years.

Conclusion: Trisomy 8 is reported in 25% of CML cases, with or without simple or complex karyotypic changes. Usually, it is seen as secondary chromosomal change associated with blastic phase in CML with a relatively poor prognosis. In the present case, trisomy 8 persisted in Ph negative cells; and the patient continues to be in chronic phase. The occurrence of Trisomy 8 as ACA may have occurred as a result of additional genetic instability due to IM therapy. In IM treated CML cases, a dosage effect of a gene or and imprinting factor may be the reason for this ACA.

EP19

Homozygous Familial Hypercholesterolaemia In Malaysian Population: A Case Report

Suhana NH, Razali R, Muid S, Alicezah MK, Hoh BP, Rahman TH, Nawawi H

Familial Hypercholesterolaemia (FH) is a common autosomal dominant genetic disease caused by mutations in the Low Density Lipoprotein Receptor (LDLR) and Apolipoprotein B (APOB) genes, which affecting the plasma clearance of LDL-Cholesterol (LDL-C). Frequency of heterozygous FH is 1: 500 whilst that homozygous is 1 in a million individuals in most population. FH patients have markedly elevated Low-Density Lipoprotein Cholesterol (LDL-C) and if undiagnosed and untreated, will have early-onset Coronary Artery Disease (CAD).

We report a rare case of homozygous FH, a 22 years old Malay woman who presented initially with minor soft tissues injury due to cycling accident and incidentally found to have severe Xanthelasma and hypercholesterolaemia (serum TC 15.3 mmol/L and LDL-C 13.9 mmol/L). She was referred to the Specialized Lipid Clinic and was diagnosed with FH based on the Simon Broome (SB) diagnostic criteria. There was history of premature CAD in the family where three siblings died of Sudden Cardiac Death. There was consanguinity in the family where the parents are cousin. All of her siblings met the SB criteria except for one brother. DNA screening of LDLR and APOB genes was done by Polymerase Chain Reaction (PCR), followed by Denaturing High Performance Liquid Chromatography (DHPLC). Homozygous mutation C234S in Exon 5 of her LDLR gene was found but no mutation was found in Exon 26 of APOB gene. This report is to emphasize the importance of identifying patients with FH and cascade screening through established diagnostic criteria and genetic studies in order to ensure early detection and therefore, early treatment intervention can be done to minimize the risk of developing CAD and its related complications.

EP20

Type II Diabetes In Early Adolescent

Faridah MZ, Nani D, Siti Suhaila MY

Introduction: The incidence of diabetes among childhood and adolescent has been increasing in trend and becoming a great challenge to the public healthcare services^{21, 22}. Among the children and adolescent, the DiCARE reported that among 240 children with diabetes registered throughout Malaysia, from April 2006 to June 2007, 69% have T1DM, 17.5% have T2DM and 7.5% have other types of diabetes¹⁴.

Case Report: We report a 13 year old Malay boy who presented with productive cough, runny nose and fever for three days. He also has been having intermittent fever, lethargy, polydipsia, polyuria, nocturia and 22kg loss of weight over the last four months. His mother and grandmother were diagnosed of having T2DM while his father has Grave's disease. He was alert and clinically stable with blood pressure of 118/78mmHg, pulse rate of 85 beats per minute and respiratory rate of 16 per minute. Body temperature was 36.3°C. Adequately hydrated. His BMI was normal for his age at 21.8kg/m². Other physical findings were unremarkable. The capillary blood sugar was 22.3mmol/L. Urine was positive for ketone and glucose with no evidence of urinary tract infection. Chest x ray was normal. There was no metabolic acidosis. HbA1c was 5.8%, C-peptide was 3.9nmol/l and negative anti-GAD antibody.

Discussion & Conclusion: This 13-year old boy was diagnosed to have T2DM. Thus, it is important to screen for diabetes among his other family members regardless of age. Diabetes in a lean young patient may not always be T1DM.

EP21

Agreement Between WHO/ISH Risk Prediction Chart And Framingham Scoring System In Out-Patient Clinic, HUSM

Norhayati MN, Sharifah Amirah SAH

Introduction: About 30% from 58 million deaths globally is attributed to cardiovascular diseases (CVD) and deaths due to non-communicable diseases are expected to increase by 17% between 2006 - 2015.

Objectives: To describe the 10-year CVD risk and determine the agreement in cardiovascular risk assessment between WHO/ISH risk prediction chart and Framingham Scoring System.

Methodology: A cross-sectional study was conducted among patients in Out-patient Clinic, HUSM in 2012. Cardiovascular risk based on WHO/ISH risk prediction chart and Framingham Coronary Disease Risk Prediction Score were assessed. Descriptive and Kappa analyses were conducted using SPSS version 19.

Results: Subjects having 10-year CVD risk based on WHO/ISH risk prediction chart of <10% were 78.6% and based on Framingham Scoring System of 10-20% were 31.1%. The agreement between WHO/ISH risk prediction chart and Framingham Scoring System was 0.11 (*P* value 0.001).

Conclusion: The Framingham Scoring System categorised more subjects to have higher risk of 10-year CVD compared to WHO/ISH risk prediction chart. The agreement between WHO/ISH risk prediction chart and Framingham Scoring System was only marginally convincing.

EP22

Unusual Presentation In Ocular Toxoplasmosis - A Case Report

Julieana M, Wan-Hazabbah WH, Zunaina Embong

Introduction: Ocular toxoplasmosis can lead to profound visual loss in young people. Toxoplasmic papillitis and neuroretinitis without a concomitant scar in immunocompetent person required challenging in diagnosis of ocular toxoplasmosis.

Case report: We report a rare case of ocular toxoplasmosis in a 25-year-old Malay man who presented with progressive blurring of vision of left eye for 1 week duration with vision of counting fingers. Funduscopic examination showed swollen disc with juxtapapillary retinitis, vasculitis and macular star. The serologic findings showed elevated immunoglobulin G Toxoplasma titre. The patient responded well to treatment with a 6 weeks course of Trimethoprim/ sulfamethoxazole. The vision improved to 6/7.5 after completed treatment and no recurrence during the 3 months follow-up.

Conclusion: Neuroretinitis with juxtapapillary retinitis could represent ocular toxoplasmosis. Accurate and prompt diagnosis could return the visual acuity to normal.

EP23

Ring Chromosome 1 In A Newborn: A Case Report

Abdul Rahman Azhari, Lim Boon Soo, Zubaidah Zakaria, Siti Fatimah Ramli, Nur Atiqah Ahmad, Abdul Razak Abdul Khalid, Normadehah Mohd Rozali, Narazah Mohd Yusoff

Introduction: Ring chromosome 1 is an extremely rare genetic disorder. Only few cases have been reported to date. The phenotype includes microcephaly, growth retardation and mild dysmorphism.

Case report: Here we report a Malay newborn baby girl who was diagnosed clinically as Edward Syndrome and with features of triangular faces, low set ears, short sternum, clitoromegaly, large head, absent corpus callosum, overlapping fingers and bilateral rocker bottom feet. Blood sample was sent to our institution and a cytogenetic analysis was done. From G banding technique, 42 cells were examined which showed a karyotype of 46,XX,r(1)(p36.3q44). Fluorescent in situ Hybridization (FISH) of whole chromosome paint (WCP) and subtelomeric 1pter and 1qter was carried out as confirmation tests. WCP for chromosome 1 confirms the ring chromosome 1 and the subtelomeric FISH shows deletion of 1pter and 1qter of the ring chromosome 1.

Conclusion: To the best of our knowledge, this is the first report of a ring chromosome 1 in a Malay patient in the northern part of Malaysia and this report adds to the collective knowledge of this rare chromosome abnormality.

EP24

**The Association Between Extreme Heat Exposure And Acute Physiological Change
Among Steel Mill Workers: A Preliminary Finding**

Nurul Atikah Che Hasan, Shamsul BMT, Norkhadijah SI, Nurul AH

Introduction: Occupational heat stress is a well-known physical hazard that affected the workers in industry. Steel plant is one of the industries that produce high exposure of thermal heat.

Objective: To determine the association between extreme heat exposure and acute physiological changes among workers in steel mill.

Materials and Methods: A cross-sectional study was conducted among 60 steel mill workers through purposive sampling method. The workers who are working in production unit that fulfils the inclusive and exclusive criteria were including in this study. The wet bulb globe temperature (WBGT) indexes model QUESTemp³⁴ was used to measure the environmental temperature. The adapted questionnaires pertaining to demographic data, working history, medical history and acute health symptoms experienced. The physiological change including blood pressure, body core temperature and heart rate were recorded before and after of work shift. Data analysis was done using SPSS Version 20.0.

Results: The record WBGT ranged from 23.9°C to 36.8°C with an average value of 27.82°C. A paired *t* test showed a significant decrease in body core temperature and also heart rate between the time after end of the work and before start the work shift (*p* value>0.001). The systolic blood pressure showed a significant increases after end of work when compared to before start the work shift (*p*=0.001). A high prevalence of acute health symptoms were heat fatigue (91.7%), heat exhaustion (70.0%), and dizziness (56.7%).

Conclusion: Changes in environmental temperature significantly affect the worker's physiological response and health as well. Thus, a continuous monitoring is needed in order to reduce and control the heat stress problem.

A Family Study Of Compound Heterozygous For Haemoglobin E And Haemoglobin Constant Spring In A Jahud Family

Azma RZ, Endom I, Danny KXR, Zafirah J, Zafirah Z, Azlah Kamilah A, Hanisah S, Aizat Naeem N, Hafiza A1 Azlin I, Hamidah NH, Ainoon O

Interaction between alpha and beta thalassaemia results in improvement in the red blood cell indices of thalassaemic individuals. Haemoglobin Constant Spring (Hb CS) and Haemoglobin E (Hb E) are common alpha and beta thalassaemia variant in this part of the world. In Peninsular Malaysia's Orang Asli, Senoi sub-group represent more than half of the population. One of its sub-ethnic group i.e. Jahut showed a very high prevalence of alpha and beta thalassaemia variants. Quite a number of them had interactions of alpha with beta thalassaemia due to marital consanguinity. This write up highlights the haematological parameters of ten members of a Jahut family who are carriers of Hb CS and/or Hb E. Two of them had both Hb CS and Hb E. A comparison was made for both compound and single disease carrier states. Almost all single carriers (8/10) of Hb CS or Hb E showed normal red blood cell indices except for hypochromicity. Similar findings were also seen in the compound state (2/10). In conclusion, routine screening using full blood count may miss quite a number of Hb CS or Hb E carriers as well as those in the compound state. Further test using capillary electrophoresis to quantitate the abnormal Hb will resolve the problem.

EP26

Hookworm Infections Profile Among Local Population In Kelantan

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Introduction: Hookworms are one of the most prevalent human parasites in developing countries apart from other soil-transmitted helminths. Although hookworm infections cause little mortality, heavy infections can cause iron-deficiency anaemia, growth retardation and low birth weight.

Method: We describe hookworm infection profiles in local population of Kelantan from 2001-2006 and 2008-2011. Data for the year 2007 were incomplete and thus excluded from this study. All results of test requesting for stool ova and cyst microscopic examination in the Medical Microbiology and Parasitology laboratory of Universiti Sains Malaysia were reviewed and analyzed. Statistical analysis were done using SPSS version 20.

Results: 15 cases of hookworm infections have been detected and reported in Hospital Universiti Sains Malaysia, Kelantan in this 10-year review. Thirteen male and two female patients were infected with the parasites. Majority were adult, whereas only three patients were from paediatric age group. Majority of patients were from district of Kota Bharu and Bachok. More than half of these patients had symptoms of abdominal pain, diarrhea and low hemoglobin count. Four patients had significant weight loss. Nine patients suffered from iron-deficiency anemia. All of these patients positively demonstrated hookworm ova in their fecal specimens and one patient had hookworm larvae. Apart from that, three patients had concurrent *Trichuris trichiuria* infection and two *Ascaris lumbricoides* infection. All 15 patients were successfully treated with albendazole and four patients had recurrent infestation.

Conclusion: Although hookworm infections were synonymously related to underprivileged community such as Orang Asli (Aborigines) and were associated with environmental factors, ie: poor water supply and personal hygiene, cases were still seen in clinical practice involving local populations.

EP27

The Effect Of Alcohol-Free Chlorhexidine Mouthwash On Oral Bacterial Colony Counts Among The Malaysian Army Personnel

Jasmin, B., Naing N.N., Azizah, Y., Zeehaida M.

Introduction: Oral health is an important aspect of combat readiness. However, during military operation army personnel are unable to fully practice normal mechanical tooth brushing. Thus, other modalities of care are needed to maintain good oral health.

Objective: To determine the effect of alcohol-free chlorhexidine mouthwash on oral bacterial colony counts among the Malaysian Army personnel.

Materials and Methods: A non-randomised double-blind community intervention study was conducted on 181 Malaysian Army personnel. Stratified and simple random sampling were used. The participants were assigned into a treatment and control groups; and they were given alcohol-free chlorhexidine mouthwash and placebo respectively. Fifteen milliliters mouthwash was gaugled for 30 seconds, twice a day for a period of two weeks. Two milliliters of unstimulated saliva was collected and cultured onto trypticase-yeast extract-cysteine sucrose-bacitracin agar. The number of bacterial colony was counted manually. The total number of oral bacterial colony (CFU/ml) was measured before intervention (Day-1), Day-7 and Day-14.

Results: Pairwise comparison analysis showed that there was a significant difference of mean oral streptococci colony counts in all comparisons in treatment group. There was a significant difference in the mean oral streptococci colony counts between groups. Time-group effect analysis also showed a significant difference of mean oral streptococci colony counts between groups at Day-7 and Day-14.

Conclusion: Regular use of alcohol-free chlorhexidine mouthwash enhance the ability to maintain oral health of the Malaysian Army personnel by reducing their oral streptococci colony counts.

EP28

**Reflecting On Knowledge And Understanding About Insulin Therapy In Type 2
Diabetes Mellitus From The Patients' Perspectives**

Shareen A/P Nui, Wan Mohamad Wan Bebakar, Norul Badriah Hassan

Background: Exogenous insulin therapy is the most effective treatment option available for type 2 diabetes mellitus (T2DM) patients, but associated with many problems. Evaluation on the knowledge and understanding with insulin therapy from the patients' perspectives are very important to improve treatment outcomes.

Objective: To reflect on knowledge and understanding about insulin therapy in patients with T2DM.

Methods: A qualitative study design was performed in patients with T2DM attending Diabetic Center, Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia. Face to face interviews using a guided semi-structured questionnaire were performed, while patients were waiting to see their doctors. Interviews were conducted until no new information could be obtained. The verbatim transcripts were analyzed line by line for relevant content and emerging themes using NVivo software version 10.0.

Results: A total of 30 patients were interviewed and each session took about 45 to 60 minutes. All patients were insulin users which comprised of 73.3% women. Many patients couldn't explain about insulin therapy (60%) and T2DM (56%). Patients perceived that they had not received enough information about glycemic control (HbA1c) target (83.3%), importance of blood glucose self-titration (70%), insulin therapy (66.6%), and diabetes (43.3%). For the outcome, more than half of patients (53.3%) had HbA1c more than 10% and only 3.3% had HbA1c less than 6.5%.

Conclusions: Patients' knowledge and understanding of diabetes, insulin therapy and outcome benefits are still poor. Health care providers should provide more information, reinforcements and frequent discussions with patients to improve knowledge and understanding with insulin therapy for better outcomes.

EP29

Fragile X Syndrome Among Multiple Siblings- Case Presentation Of A Family

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Introduction: Global developmental delay is a challenging pediatric diagnosis with a complex etiology involving genetic and environmental factors and their interactions. A family history captures the collective influence of shared genetic susceptibility within families and a suspected diagnosis can be confirmed through genetic tests. Here we report, a family in which multiple siblings were affected with global developmental and diagnosed as Fragile X syndrome cases through genetics tests.

Family Report: Blood samples of a 3 siblings aged 11 (M), 10 (F) and 5(M) years with history of global developmental delay and mild dysmorphic features were sent to Human Genome Centre for chromosome analysis. Father (56 years), mother (47 years) and 3 elder siblings are apparently normal. Conventional cytogenetic and special cytogenetic technique for fragile site detection were carried in 3 affected siblings and parents. Conventional cytogenetic analysis showed normal karyotype for all 5 subjects studied. Special technique for fragile site, demonstrated fragile Xq27.3 site of varying percentages in all 3 siblings, confirming diagnosis of fragile X syndrome.

Discussion: Fragile X syndrome (FXS) is the most common single gene cause of inherited mental retardation, caused by a CGG trinucleotide repeat expansion in the FMR1 gene on chromosome Xq27.3. A suspected diagnosis of FXS was confirmed with specialized cytogenetic testing. The occurrence of affected males and female in this FXS family suggest mother as a premutation carrier. Early diagnosis enables the physician to provide management, intervention and preventive services for affected individuals and the family. Parents need to consider their own reproductive risk, determine whether other children are carriers and inform extended family members.

EP30

Cabergoline In Type 2 Diabetes And Metabolic Syndrome: Effect On Glycaemia And Lipid Parameters

Wan Mohd Izani Wan Mohamed, Yusliza Azreen Mohd Yusof, Miza Hiriyanti Zakaria, Wan Mohamad Wan Bebakar

Introduction: Ergot-derived dopamine D2 receptor agonists are the usual treatment of hyperprolactinemia and Parkinson's disease and recently bromocriptine has been approved for the treatment of type 2 diabetes. Cabergoline is another D2 receptor agonist with better tolerability profile compared to bromocriptine. Cabergoline has not yet been studied for use in diabetes.

Objective: To evaluate the metabolic effect of short-term use of cabergoline in patients with diabetes and metabolic syndrome compared to usual care.

Methodology: A randomized controlled study was conducted involving 40 patients with Type 2 Diabetes Mellitus and Metabolic Syndrome. Twenty patients were randomized and treated with cabergoline 0.5 mg twice weekly for 3 months (Cabergoline Group) and another 20 patients continued with their usual medications (Control group). Fasting plasma glucose (FPG), HbA1c and lipid profile were determined at baseline and at the end of the trial.

Results: Cabergoline reduced FPG from 7.66 to 7.20 mmol/L compared to control group (6.72 to 7.73), however the changes were not significant ($P=0.100$). There was no significant changes in HbA1c level (8.55% to 8.58%, $P=0.877$) compared to control group (8.25% to 8.34%). There was no difference in HbA1c (0.04%), FPG (0.46 mmol/L) levels and lipid profile between the Cabergoline and control group at 12 weeks. There was no significant changes in total cholesterol ($P=0.215$), LDL ($P=0.156$), HDL ($P=0.229$) and triglyceride level ($P=0.549$).

Conclusion: Adjunctive therapy of Cabergoline to usual treatment was not associated with a significant change in glycaemic and lipid control in patients with type 2 diabetes and metabolic syndrome.

EP31

The Association Of COPD Assessment Test (Cat) With Gold Grade Among COPD Outpatients In The East Of Peninsula Malaysia

Wan Mohd Izani Wan Mohamed, Hazleena Mohamed Hasnan, Mat Zuki Mat Jaeb,
Nani Draman

Introduction: Assessment in COPD is important to determine the severity of the disease, to look at the clinical impact of COPD on the patient's overall health status and to estimate the risk of future exacerbation, in order to guide treatment.

Objective: To determine the association between CAT in Malay version with severity of airflow limitation based on GOLD grade, cardiovascular co-morbidities and frequency of acute exacerbation within a year among stable COPD outpatients in two main hospitals in Kota Bharu, Kelantan.

Methodology: This is a cross sectional study conducted among 95 patients with COPD attending the respiratory clinic at HUSM and Hospital Raja Perempuan Zainab II. COPD assessment test (CAT) questionnaire in Malay version and COPD data collection were used to determine COPD severity. Previous electrocardiogram, echocardiogram and angiogram findings of patients with background history of cardiovascular disease were reviewed. Spirometry was performed following the interview

Result: There were male (89.5%), Malay (94.7%) with mean age of 66.43 \pm 8.61. Most of them 48 (50.5%) have moderate CAT score with 40 (42.1%) patients have severe airflow limitation-GOLD grade III. There was a significant different between the mean of CAT score amongst each GOLD grade. The association between CAT score with cardiovascular co-morbidities and frequency of acute exacerbation were not statistically significant.

Conclusion: CAT score has a significant different in between each GOLD grade especially in GOLD grade I and 4 and CAT score was not found to have a statistically significant association with the cardiovascular co-morbidities and frequency of acute exacerbation within a year.

EP32

The Effects Of Cigarette Smoking On Lung Function Among Male Steel Workers In Terengganu, Malaysia

Nurul AH, Noor Hassim I, Shamsul BMT, Atikah CH

Introduction: During the past 50 years, the awareness of the association between human exposure to cigarettes and the risk for lung cancer has been increasing. The epidemiological studies have shown that smoking was the main cause of lung carcinogenesis among the smokers.

Objective: The aim of this study was to determine the relationship between lung functions with smoking frequency, smoking duration, and other selected variables among smokers as well as to compare the lung function with non smokers.

Materials and Methods: A cross sectional study was carried on a group of 310 smokers and 251 non smokers in a steel mill in Terengganu. A validated British Medical Research Council (BMRC) Questionnaire were used to obtain background information, their past history of smoking, present smoking habit, and current respiratory symptoms. Data analysis was done using univariate and multivariate analysis.

Results: The smokers' age was 34.28 years, their smoking initiation age was 19.94 years, the smoking duration was 14.27 years, and the smoking frequency was 11.46 cigarettes per day. Simple Linear Regression showed significant inverse correlation between smoking frequency (number of cigarette per day) with FVC ($r=0.112$, $p=0.049$) and FEV₁ ($r=0.117$, $p=0.040$). Smoking duration also had an inverse correlation with FVC, FEV₁ and FEV₁/FVC ($p < 0.05$ and $p < 0.001$). Multiple regression confirmed the relationship between FEV₁ with respondents' age ($p=0.015$) and smoking frequency ($p=0.03$), FVC with respondent's age ($p = 0.004$) and smoking frequency ($p=0.008$). The FEV₁/FVC% predicted was significantly related to phlegm symptoms ($p=$) while the FEF_{25-75%} was significantly related to age ($p=0.004$), height ($p=0.046$), and smoking duration ($p=0.043$). The lung functions (FEV₁, FVC and FEV₁/FVC for the smokers were statistically different from the non smokers. The prediction model of FVC and FEV₁ were explained by 23% and 28% of independent variables, respectively.

Conclusion: The lung functions for the smokers were abnormal due to their smoking duration, their high number of cigarettes smoked per day, and their older age.

EP33

Retention On Methadone Maintenance Therapy Among Opiate Dependents

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Introduction: Methadone Maintenance Therapy (MMT) is extensively used for comprehensive treatment of opiate dependence. However, various studies shown that the retention rate on MMT was not satisfactory and need for the improvement.

Objective: To determine and compare the one year retention rate on MMT program with selected variables among opiate dependents in Hospital Raja Perempuan Zainab II (HRPZ II).

Methods: The retrospective record review study was conducted among 178 Malay opiate dependents who newly admitted to MMT program in Psychiatric Clinic at HRPZ II. A Kaplan Meier was used to estimate the retention rate on MMT. Log rank test was used to compare retention rate among gender, employment status, education level, marital status, level of methadone maintenance dose, take away dose and relapse of drug abused during MMT program.

Results: The one year retention rate was 60.1%. There had no significant difference of retention rate among all demographic characteristics. Meanwhile level of methadone dose, take away dose and relapse of drug abused shows significant difference of retention rate. High dose (>60mg) was higher retention rate (75%) compare to lower dose (p value = 0.002). Also, those who allowed for take away dose shows significant higher retention rate (70.5%) with p value <0.001. However, relapse of drug abused (positive urine) contributed to lower retention rate (35.6%) (p value = 0.008).

Conclusion: Opiate dependents on MMT should be offered with high maintenance and allowed for take away dosage. Relapse of drug abused during MMT is strongly prohibited for them.

EP34

Methadone And Anti-Tuberculosis Treatment (Rifampicin) Drug Interaction

Nursuhaila I , Norwati D

Introduction: Methadone maintenance therapy clinic in Malaysia has been established since 2005. Many of its patients have co-existing diseases such as tuberculosis and retroviral disease. They are usually also on treatment for the respective diseases.

Case report: A 35-year-old man was diagnosed with tuberculous lymphadenitis and was started on Ethambutol, Isoniazid, rifampicin and pyrazinamide. He was also under follow-up at a Primary Care clinic for methadone maintenance therapy with the dose at the time was 80 mg daily. After starting anti-TB treatment, he started to experience withdrawal symptoms which were tremors, runny nose and tearing especially in late afternoon. The withdrawal symptoms were not present on the days when he skipped his anti-TB medications. Since then, he had been requesting to increase his methadone dose every few days leading to several arguments with the pharmacist as he was suspected to sell the drugs. Upon referral to the doctor, drug interaction was suspected between methadone and rifampicin, as rifampicin is an enzyme inducer. The methadone dose was increased every few days up to 110 mg daily where it was able to control his withdrawal symptoms. The dose was higher than the normal recommended dose of 80-100mg a day.

Conclusion: Concomitant treatment with Rifampicin in patients taking methadone leads to higher dose requirement for methadone due to enzyme inducer effect of rifampicin which reduces the pharmacological effect of methadone.

EP35

Triple X Syndrome In A Neonate With Multiple Syndromic Features:A Rare Phenotypic Presentation

Nazihah Mohd Yunus, Hashima Hashim, Ruzi Hamimi Razali, Nurul Alia Mohd Nawi, Siti Mariam Ismail, Norhidayah Ramli, Nik Mohd Zulfikri Mat Zin, Ilunihayati Ibrahim, Ravindran Ankathil

Introduction: The Triple X syndrome is a rare sex chromosome anomaly, which involves the presence of three X chromosomes resulting in 47,XXX karyotype. It usually is of sporadic origin. Triple X is not associated with any characteristic physical phenotype, except lower birth weight and smaller head circumference. Here we report an interesting case of Triple X, with multiple syndromic features.

Case report: This is a 1 day old baby girl from non-consanguineous marriage, presented with multiple syndromic features (hypertelorism, high arched palate, short and web neck, wide space nipple, small forehead, low hairline, low set ears, micrognathia with left upper molar tooth, incurving fingers and right rocker bottom foot). With these major dysmorphic features, this baby was suspected to have Edwards syndrome. However the conventional cytogenetic analysis in this case showed 47,XXX karyotype pattern, which was an unexpected finding. FISH analysis using WCP probe for X chromosome also confirmed the presence of one extra X chromosome.

Conclusion: Diagnosis of 47,XXX individuals at birth remains difficult because specific clinical criteria used to identify this condition are not available. Many affected females are apparently normal and may go undiagnosed. Clinically, this baby presented with features of Edwards syndrome, however the karyotype result revealed diagnosis of Triple X syndrome. These multiple syndromic features has not been previously reported in patients with Triple X syndrome. There was no history of maternal exposure to environmental factors, in early first trimester of pregnancy. In view of these findings, array CGH is recommended to confirm possibility of any molecular (gene) alteration.

EP36

Big Five Personality Traits In USM Personality Inventory(Usmap-I) Among Medical Course Applicants

Siti Nur Farliza, Nyi Nyi Naing, Nor Azwany Yaacob, Wan Nor Arifin,
Muhamad Saiful Bahri

Introduction: The USM Personality Inventory (USMaP-i) consisted of 60 items representing the five personality dimensions called as Big-Five. A previous study by Yusoff *et al.* (2011) reported that USMaP-i had a good level of of construct validity based on exploratory factor analysis. **Objective:** To determine the construct validity and reliability of the Big-five personality traits in the USMaP-i in medical course applicants sample. **Methods:** Data was obtained from the USMaP-i database for the medical course applicants in second (2010/2011), third (2011/2012) and fourth batch (2012/2013). This study described the construct and reliability of that Big-Five in USMaP-i among medical course applicants using confirmatory factor analysis approach. The number of the sample was 657 medical course applicants. **Results:** Factor analysis showed that the items are not well distributed according to the Big Five personality dimensions. There were only twelve items remained with acceptable model fit. While the value of average variance extracted (AVE) and construct reliability (CR) were low. **Conclusion:** The researchers who developed Big-Five model in USMaP-i need to make revision and redeveloped the model.

EP37

Associated Factors Of Excessive Daytime Sleepiness Among Undergraduate Medical Students In Universiti Sains Malaysia

Wan Bazilah Wan Mohamad Sobri, Syed Hatim Noor, Sarimah Abdullah

Objective: To determine the prevalence and the associated factors of excessive daytime sleepiness among undergraduate medical students in Universiti Sains Malaysia.

Methods: A cross-sectional study was done among 368 Year Two and Year Three undergraduate medical students. The informations on socio-demographic characteristics, health behavior characteristics and co-morbidities characteristics were collected using self-administered questionnaires. The severity of daytime sleepiness were measured by the ESS and the depression, anxiety and stress level were measured by using DASS questionnaire. The ordinal logistic regression was used in this study to analyze the associated factors.

Results: A total of 311 participants out of 368 have returned the questionnaire (84.5%). Approximately 69% of the respondents were females. There were 193 participants (62%) involved were Malays, 97 participants were Chinese (31%), 17 participants were Indian (5%) and four were Other races (1%) involved in this study. There were 54% of total participants were Year Two medical students while the other 46% were Year Three medical students. The prevalence of EDS among undergraduate medical students in USM was 57.2% with no EDS, 24.4% had average sleepiness and 18.3% had excessive sleepiness. The associated factors of EDS included level of year with adjusted OR=0.46 (95% CI; 0.26, 0.81); p -value=0.007, BMI status (obese) with adjusted OR=0.48 (95% CI; 0.24, 0.95); p -value=0.034, anxiety level (mild) with adjusted OR=3.24 (95% CI; 1.40, 7.49); p -value=0.006, anxiety level (moderate) with adjusted OR=5.79 (95% CI; 1.96, 17.06); p -value=0.001, anxiety level (severe) with adjusted OR=17.37 (95% CI; 1.56, 192.92); p -value=0.020, stress level (mild) with adjusted OR=5.29 (95% CI; 1.71, 16.30); p -value=0.004 and 5.50 (95% CI; 1.82, 16.62); p -value=0.003.

Conclusion: The associated factors of EDS among undergraduate medical students such anxiety and stress level need to be treated.

EP38

Effect Of Stress On Coping Strategies Among Parents With Cleft Lip And Palate (CLP) Children In Kelantan

Nurhazalini-Zayani CG, Norsa'adah Bachok, Aniza Abd Aziz, Normastura AR, Ahmad Burhanuddin Abdullah

Introduction: Cleft Lip and Palate (CLP) is a common congenital anomaly affecting newborn. Parents as a caregiver experience stress as a result of physical and emotional disabilities of their child.

Objective: This research aimed to determine the effect of stress on coping strategies among parents with CLP children.

Methods: A retrospective study was conducted among 84 parents of CLP children from Combined Cleft Unit at Dental Clinic, Kota Bharu. We excluded guardians and parents with disability and mental illness. Stress and Coping were assessed using Depressive, Anxiety and Stress Scale-42 (DASS-42) and Malay COPE Inventory questionnaires, respectively. COPE questionnaire consists of problem focus, emotion focus and less useful domains. Analysis was done using multivariate analysis of variance (MANOVA).

Result: The mean age of respondents was 35.5 (SD 7.4) years old. All respondents were Malay and married and 71% were mother. The prevalence of stress was 21%. There was a significantly different in the mean of overall coping domains between stress and non stress parents [MANOVA Pillai's Trace F statistics 3.794 (3, 80), p value 0.013]. Univariable ANOVA showed that only means of problem focus [F statistics (df) 4.082 (1) p value 0.047] and less useful domains [F statistics (df) 8.258 (1) p value 0.005] were significantly different between stress and non stress. There was no significant difference in the mean of emotion focus coping between groups [F statistics (df) 0.679 (1) p value 0.412].

Conclusion: Stress parents significantly used less problem focus coping but more on the less useful coping compared to non stress parents.

EP39

Husbands' Support Among Perimenopausal Wives

Intan Idiana H, Nik Hazlina NH, Azidah AK, Norhayati MN

Introduction: Menopause is characterized by major physical, psychological and social changes, which can negatively affect the quality of life of women who experience it. In relation to this, research findings suggest that social support especially spousal support may ease the transition process of menopause, perhaps even lessening some of its symptoms.

Objectives: The objective of this study was to explore the husbands' perceptions regarding the type of support they provided to their menopausal wives, knowledge on menopause and also their attitude towards menopause.

Methods: This study was conducted by using mixed quantitative and qualitative methods. One hundred and twenty (120) husbands of perimenopausal women were recruited from the outpatient clinics in Hospital USM Kelantan, organizations, mosques and interested participants around Kota Bharu. They were given self administered questionnaire which focused on how supportive they perceived themselves to be, the level of their knowledge and attitude towards menopause. For the qualitative part, eight of them were chosen for semi-structured, in-depth interview. Descriptive and thematic analyses were used in this study.

Results : The age of the husbands ranged from 41 to 74 years old, majority of them had secondary school education level, and monogamous. Findings from this study indicated that emotional support was the highest type of support they provided to their wives, while informational support was the lowest. Majority of the husbands who had neutral attitude towards menopause expressed a desire to support their wives, but 97.3% of them had poor knowledge about menopause. Most of them reported that lack of knowledge about menopause was the highest barrier for them to give support. Two themes were frequently emerged within the data: there were both positive and negative perceptions towards the wives undergoing menopausal phase.

Conclusion: Lack of knowledge may influence the husbands' ability to provide social support. This finding suggest that husbands of middle aged women should also be involved in menopausal education as they play important and positive roles in supporting women with this condition.

EP40

**An Analysis Of Unused Return Blood Components After Issuance At Hospital
Universiti Sains Malaysia (HUSM)**

Mohd Nazri Hassan, Rapiaah Mustafa, Salamah Ahmad Sukri

Introduction: Millions of blood components are transfused every year, therefore many lives are directly concerned by transfusion. However if a decision of not to transfuse is made, all blood components shall be returned to the blood bank immediately since it might lead to wastage if the acceptance criteria of reissuance is not met and next will significantly impact the blood supplies. The aim of this study is to evaluate the unused returned blood component to the blood bank after issuance.

Material and Methods: This was a cross sectional study done from August 2012 to February 2013 at Transfusion Unit, HUSM. All unused returned blood components during study period were analysed for the number of units returned and their reasons. The temperature and duration of stay outside of blood bank was monitored.

Results: The totals of 620 units of blood components (3.1% from the supply) were returned. Majority are packed cell (69.7%) followed by fresh frozen plasma (17.4%), cryoprecipitate (8.5%) and platelet (4.4%). Majority (80.9%) of them did not fulfill standard acceptance criteria of reissuance. The reasons of return are majority (47.4%) due to 'standby' purpose followed by patient death (15.6%), adequate haemoglobin level (7.6%) and few other reasons.

Conclusions: Although the number of unused returned blood component is small but it may affect the blood supply since majority of them were destroyed. Every effort should be made to prevent wastage of this precious resource. Communication and continuing education about proper handling of blood components outside the blood bank is very important in minimizing wastage.

Genotyping Of Clinical *Burkholderia Pseudomallei* Isolates: A Preliminary Report

AbdelRahman M. Zueter, Azian Harun

Introduction: *Burkholderia pseudomallei* is a soil dwelling Gram-negative bacteria that cause melioidosis. The infection is known to predominate, exclusively, in Southeast Asia and Northern Australia, but still can be recognized in other countries worldwide. Multi-locus sequence typing (MLST) is one of molecular genotyping methods that have been established for further exploring *B. pseudomallei* epidemiology and tracking the genotypic diversity among populations and environment.

Methodology: Six isolates of *B. pseudomallei* were collected from six melioidosis patients admitted to Hospital Universiti Sains Malaysia. The bacteria were subcultured on tryptone-soya agar, genomic DNA was extracted and subjected to PCR amplification of seven house-keeping genes. DNA sequencing was performed and every isolate was represented by a code of 7 digits called allelic profile, which is assigned as sequence type (ST). The genetic relatedness among the isolates and the global distribution were displayed using eBURST software and global MLST database website.

Results: The MLST analysis resulted in 5 of 6 isolates having different STs. All ST's belongs to Southeast Asian region. Two novel STs were reported and compared with dataset in the global *B. pseudomallei* MLST database and showed genetic relatedness (single locus variation, SLV) to each other and to isolates from Thailand origin. All ST's were found to belong to the same group cluster.

Discussion & Conclusion: MLST of six isolates of *B. pseudomallei* from Malaysia showed considerable diversity and suggests a non-recent introduction of *B. pseudomallei* into this area. Possible bacterial dissemination via environmental (water and dust) and population travelling routes is supported by links to strains from Thailand and other Southeast Asia countries.

EP42

**Preliminary Analysis On The Usage Of Virgin Coconut Oil As Supplementation On
Quality Of Life Among Breast Cancer Patients**

Law Kim Sooi, Ernest Mangantig, Narazah MY, Biswa MB, Imran AK,
Siti Amrah S, N.Hazlina NH

Introduction: The aim of this study was to examine the effectiveness of virgin coconut oil (VCO) on the quality of life (QOL) of patients with breast cancer.

Methods: This is a simple randomized experimental study among breast cancer patients admitted at an Oncology unit, Hospital USM, Kubang Kerian, Kelantan. The sample consisted of 24 patients with type III and IV of breast cancer allocated to an intervention group (n = 12) and a control group (n = 12). QOL was evaluated from the first cycle of chemotherapy to the 6th chemotherapy and the data were collected using a validated Malay version of European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Breast Cancer Module (EORTC QLQ-C30) and its breast specific module (QLQ-BR 23) instrument.

Results: The mean age of breast cancer patients was 50.2 (SD = 13.5) years. In general, breast cancer patients showed a significant difference in mean physical functioning, future perspective, fatigue and nausea and vomiting score between control group and VCO group. However, QOL scores in role, cognitive, social well being functioning scales and several symptoms did not improve or even deteriorated.

Conclusion: The findings suggest that overall breast cancer patients perceived some benefit from VCO and it is safe for use in breast cancer patients. These results may help in discussing QOL issues and should be considered when planning and implementing interventions for patients with breast cancer.

EP43

Postoperative Iliopsoas Haematoma Due To Undiagnosed Congenital Factor X Deficiency - A Case Report

Mohd Nazri Hassan, Wan Zaidah Abdullah, Syafini Mohamed Yusoff, Zakiah Nurasyikin
Mohamed Halim, Azlan Husin

Introduction: Factor X (FX) deficiency is a rare, recessively inherited bleeding disorder. Its clinical presentation is among the most severe of the rare coagulation defects typically haemarthrosis, haematomas, and bleeding from gastrointestinal and umbilical stump. Post-operative bleeding in a diagnosed patient is not frequently apparent because the great majority of patients receive replacement therapy before surgery.

Case report: A 15-year-old Cambodian teenager was admitted with complained of difficulty in walking due to progressive right hip pain associated with right lower limb weakness and numbness. Five days prior to the presentation he had an appendicectomy surgery. He gave history of easy bruising upon minor trauma since childhood and profused bleeding following circumcision. However there was no proper investigation done. On examination he was pale and afebrile. The right hip was swollen and in flexion deformity with evidence of right femoral nerve palsy. There was a large haematoma over the appendicectomy wound. CT scan of pelvis revealed infected intramuscular haematoma of the right iliopsoas, iliacus and anterior abdominal wall. The platelet count was normal with markedly prolonged both of prothrombin time (PT) and activated partial thromboplastin time (APTT), and fully correction of mixing study which suggestive of factor deficiency. Coagulation factor assay showed moderate FX deficiency (5.8% of normal activity).

Conclusion: Pre-operative coagulation screening test before a surgical procedure should be practiced in patients with significant bleeding history in both emergency and elective situations. Appropriate laboratory investigation should be followed. In this case, the surgical morbidity related to post-operative bleeding could be prevented by replacement therapy.

EP44

Plasma Levels Of Brain Derived Neurotrophic Factor [BDNF] And Cleaved Tau [C-Tau] Protein In Critically Ill Patients

W.N., Wan Nurul Izzati; W.A., Wan Asim , I., Zalina, O. Mohammarowi

Introduction: BDNF has been found at low concentration in the plasma of healthy persons and show a high concentration after neuronal damage. It is related to the fact that BDNF is needed for recovery of brain function, after acute stress and the decrease of its level in patients has been suggested to be related to the inability of these patients to cope with acute stress. Meanwhile, cleaved tau level was also higher in head injury patients compared to healthy peoples. Increased serum cleaved tau protein was associated with a greater chance of intracranial injury and poor outcome in patients with closed head injuries. Whether BDNF and c-tau protein levels can be a marker of brain dysfunction and thus predict severity of illness/mortality in critically ill patients is not known.

Objective: We compared the level of specific biochemical markers of axonal damage (C-tau protein) and nerve growth factor (BDNF) in critically ill patients with that of health subjects.

Methods: Healthy volunteers (n = 10) and consecutive patients older than 18 years (n = 16) admitted in an Intensive Care Unit (ICU) in Universiti Sains Malaysia between February and March 2013 were included in the present study. The blood samples were collected in EDTA bottles several hours after the patients were admitted into the ICU. All the proteins level was determined by using the Cusabio ELISA kit. Mann-Whitney test is used as statistical analysis because the samples are not normally distributed.

Results: The plasma levels of BDNF and C-tau in healthy volunteers were higher when compared to the admission plasma levels [median] of BDNF and C-tau in ICU patients (0.155 versus 0.111 ng/ml) and (0.579 versus 0.199 ng/ml) respectively. Both test also showed a significant difference ($p < 0.05$) when with the following p values for BDNF ($p = 0.00$) and c-tau ($p = 0.003$).

Conclusions: Our initial finding showed that the plasma levels of BDNF and c-tau were not associated with severity of illness in ICU patients. This is in contrast to other studies, and is now the subject of further analysis. It may be related to the admission status of the patients prior to onset of neuronal damage.

EP45

A 24 Years Old Girl With Müllerian Aplasia, A Suspected Case Of Mayer-Rokitansky-Kuster-Hauser Syndrome

Hashima Hashim, Ruzi Hamimi Razali, Nazihah Mohd Yunus, Nurul Alia Mohd Nawi, Siti Mariam Ismail, Norhidayah Ramli, Nik Mohd Zulfikri Mat Zin, Ramli Ibrahim, Ilunihayati Ibrahim, Ravindran Ankathil

Introduction: Aplasia of the Müllerian ducts leads to absence of uterine corpus, uterine cervix and upper vagina; and will be presented with primary amenorrhoea. For differential diagnosis of Müllerian aplasia, another disorder known as complete androgen insensitivity syndrome (CAIS) should be ruled out. This is a case report of Müllerian aplasia in a 24 years old girl.

Case report: A 24 years old girl presented with history of primary amenorrhoea. She was of normal female appearance with normal breast development and body hair distribution, average height and weight. External genitalia appeared normal, but the vagina was blindly ended. Uterus was neither palpable upon per rectal examination nor visualized by the bedside scan. Hormonal studies including FSH, LH, oestradiol, progesterone, prolactin and testosterone were all normal, indicating normal hypothalamic-pituitary-ovary axis. MRI of the pelvis showed hypoplastic uterus and cervix. A conventional cytogenetic analysis confirmed 46,XX karyotype pattern. This ruled out CAIS. From the clinical features and cytogenetic result, the case was diagnosed as Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome.

Conclusion: The MRKH syndrome is uncommon with reported incidence of 1 in 4500 female births, but it represents the second most leading cause of primary amenorrhoea after gonadal dysgenesis. No genetic cause has been identified for MRKH syndrome and it has for a long time been considered as a sporadic anomaly. However, recently it has been described as a polygenic multifactorial inheritance and studies have shown the role of HOX genes in genital tract development that might account for this syndrome. Our aim is to discuss regarding the genetic implication of primary amenorrhoea for future reference, particularly in pertaining to diagnostic studies.

EP46

Mosaic Trisomy 22 In Live Born Infant – A Rare Case Presentation

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Introduction: Trisomy 22, a condition in which an individual has 3 copies of chromosome 22, is one of the more severe chromosome disorder, but very rare. The condition can be complete or mosaic. Trisomy 22 is a frequent cause of spontaneous abortion during first trimester of pregnancy. Progression to the second trimester and live birth are rare. We report a live born case of mosaic trisomy 22.

Case Presentation: A 1300 gm female child was born after a normal pregnancy and delivery to non-consanguineous parents of Malay origin. The 23 years old mother, 30 years old father, a 7 years old elder sibling are healthy. This baby girl presented with several dysmorphic features which gave a clinical suspicion of Patau syndrome. However, cytogenetic analysis carried out in 40 GTG banded metaphases showed 47,XX,+22 [36] / 46,XX [4] karyotype pattern. Abnormal metaphases (90%) showed trisomy of chromosome 22 whereas normal metaphases showed normal karyotype pattern. Trisomy of chromosome 22 was reconfirmed employing FISH technique. The baby expired 48 hours after birth.

Discussion: Complete or mosaic trisomy 22, each has somewhat different phenotype and natural history. Complete trisomy 22 is seen commonly in spontaneous abortuses. Mosaic trisomy 22 is rare but is compatible with prolonged survival. The present reported mosaic trisomy 22 might have survived to term, due to low percentage of normal cells. However, the baby could survive only 48 hours due to the severity of associated clinical features. The low percentage of mosaicism found in the proband lead us to conclude that the aneuploidy (trisomy 22) was a post – meiotic non disjunction event.

EP47

Macroprolactinaemia among hyperprolactinaemia patients in Hospital Universiti Sains Malaysia

Noor Azlin Azraini Che Soh, Julia Omar, Wan Mohd Izani Wan Mohamed, Najib Majdi Yaacob, Mohamed Rusli Abdullah

Introduction: Hyperprolactinaemia is the most common hypothalamic-pituitary disorder encountered in clinical endocrinology. A known benign condition that causes hyperprolactinaemia is macroprolactinaemia. Clinical features alone could not distinguish between macroprolactinaemia and true hyperprolactinaemia. Differentiating macroprolactinaemia and true hyperprolactinaemia is important as macroprolactinaemia does not require any treatment.

Objective: To determine proportion of patients with macroprolactinaemia among hyperprolactinaemia patients in Hospital Universiti Sains Malaysia (HUSM).

Methods: A cross sectional study was conducted in HUSM from 2011-2012. Serum prolactin was measured using cobas e411 using sandwich principle. To differentiate true hyperprolactinaemia and macroprolactinaemia, the same serum was treated with polyethylene glycol (PEG). A recovery of less than 40% indicates macroprolactinaemia. Proportion of patients with macroprolactinaemia was then calculated with its 95% confidence interval of proportion.

Results: A total of 65 patients, 56 (86.2%) female and 9 (13.8%) male aged between 19 to 68 years old with mean (SD) age of 34.6 (12.7) were involved in this study. Three patients (one male and two female) were found to have macroprolactinaemia. The proportion of patients with macroprolactinaemia was therefore 4.6% (95% CI: -0.5%, 9.7%).

Conclusion: In this study, the proportion of macroprolactinaemia was low. Majority of patients presented with hyperprolactinaemia in HUSM were true hyperprolactinaemia.

EP48

Microbial Adhesion And Biocorrosion Processes Of Dental Casting Alloys In The Presence Of Different Microorganisms

Salah Khalaf Al-Rawi, Zaihan Ariffin, Adam Husein, Fazal Reza

Introduction: In the oral cavity a complex highly aggressive polymicrobial communities may be adherence and existing colonization and formation of a biofilms in retentive areas of metal framework dental prostheses promoting corrosion of their surfaces and effect on materials performance.

Methodology: The main aim of this study was to study the microbial adhesion and biocorrosion of Titanium and Cobalt-Chromium alloy in the presence of biofilms composed of three microorganisms (*Streptococcus mutans*, *Staphylococcus aureus* and *Candida albicans*) incubated for 90 days. Each organism was separately grown in specific growth media. Corrosion was performed by measurement of surface roughness (Ra) and weighting both group samples before and after microbial incubation. Counts of viable micro-organisms in the accumulating biofilm layer were determined and converted to colony forming units (CFU) per unit surface area to evaluate the microbial adhesion. Scanning electron microscopy (SEM) was employed in order to observe the morphological features of the corroded area on (Ti and Co-Cr). Comparisons were made among groups found normally distributed; therefore, one way ANOVA and paired *t*-test were employed using a significance level of $p < 0.05$.

Results: After 90 days of microbial incubation, the mean adhesion of (*S. m*) significantly than (*S.a*) while highly significant versus (*C.a*) respectively on Co-Cr surface and there is no significant adhesion between microorganisms on Ti. The microbial adhesion on Co-Cr significantly higher than Ti. Biofilm showed significantly increased of (Ra) and weight loss.

Discussion & Conclusion: Dental alloys were used to fabrication of prosthesis framework prolonged contact with microbial oral cavity lead to corrosion then lead to foster microbial adhesion on prosthesis can be lead to failure of this prosthesis component surface and this adhesion lead to enhancement of oral infection.

EP49

Determination Of Mean Glandular Doses For Breasts Simulated With PMMA In A Laboratory Environment In Malaysia

S. B. Samat, W. Priharti

The acceptable mean glandular dose (MGD) levels for PMMA phantoms of thicknesses of 3, 4 and 5 cm outlined by The European Commission (EC) were 1.3, 2.0 and 3.3 mGy. While the Nationwide Evaluation of X-rays Trends (NEXT) Program reported the MGD level of screen-film mammography (SFM) for 4.2 cm phantom were 1.30 mGy and 1.50 mGy. In Malaysia, despite the rise on use of digital mammography (DM), the use of SFM is still out-numbered. The Ministry of Health (MOH) reported that the percentage ratio of SFM to DM is 62:38. Since SFM is the larger portion, it would be interesting to find-out whether the measured MGD using SFM are in accordance with the EC acceptable levels. The purpose of this work is to determine the MGD for 3, 4, 5 cm PMMA simulated breast phantoms using SFM in a laboratory environment. Measurements were carried-out in a laboratory of the Malaysia Nuclear Agency (MNA) using SFM Bennet MF-150G with Mo/Mo target/filter combination. To calculate MGD, the method described by Dance was used. Three typical mammography kVps namely 26, 28 and 30 were selected. The selection of mAs was done manually because at the time of measurements the automated-exposure control (AEC) of the SFM was not functioning properly. The measurements results, if they were reported in the format of thickness (MGD values for 26, 28 and 30 kVp), were 3 cm (0.650, 0.567, 0.564 mGy), 4 cm (1.337, 1.275, 1.178 mGy) and 5 cm (2.010, 1.839, 1.276 mGy). If the EC acceptable levels were taken as the standard, the percentage different of the measured values were 3 cm (-50%, -56.39%, -56.62%); 4 cm (-33.15%, -36.25%, -41.10%); 5 cm (-39.10%, -44.27%, -61.33%). The measured MGD values can also be compared with the results yielded by the NEXT program if the interpolation of simulated breast thickness at 4.2 cm were applied. The present work yielded 4.2 cm (1.47, 1.39, 1.22 mGy), which is in agreement within -18.67 to 13.08%. In conclusion, the MGD levels determined in a laboratory environment in Malaysia for breasts simulated with PMMA of thicknesses 3, 4 and 5 are well below the acceptable levels set by the EC and also in agreement with the doses obtained by the NEXT program.

EP50

Knowledge And Attitude On Colorectal Cancer And Its Screening Among Primary Care Providers In Malaysia

Norwati D, Harmy MY, Norhayati MN, Amry AR

Introduction: Although colorectal cancer is a common cancer in Malaysia, the uptake of its screening is extremely low. Health care provider's knowledge and attitude contribute to the practice of screening of eligible patients.

Objectives: To determine the knowledge and attitude on colorectal cancer and its screening among primary care providers in West Malaysia

Methods: A cross sectional study was conducted from August 2009 till April 2010. A self-administered questionnaire was sent to doctors and medical officer's assistants in 41 primary care clinics in West Malaysia. Descriptive analysis was done using Statistical Program for Social Sciences (SPSS) version 12.0.

Results: There were 116 respondents involved which made a response-rate of 87.9%. Of all the respondents, 43.9% were doctors. The mean(SD) knowledge and attitude was 72.4(6.51)% and 56.6(11.26)% respectively. Only 13.8% had good knowledge and 3.4% had good attitude. Over 80% were aware of the risk factors and symptoms of colorectal cancer. About 92.3% knew that colonoscopy is the recommended screening modality in high risk individuals. However, only 58.6% were aware of the current recommendation for colorectal cancer screening. Although 74.1% will recommend screening, only 47.3% believed that faecal occult blood test (FOBT) can detect colorectal cancer. About 50% felt that FOBT is difficult and time consuming to do. Almost 40% felt that patients would refuse FOBT.

Conclusion: Majority of primary care providers had poor knowledge and attitude on colorectal cancer and its screening. About half were unaware of the current recommendation. Therefore, colorectal cancer education is an important area to be emphasized.

EP51

Gelam Honey Supplementation And Calorie Restriction Reduce Oxidate Damage In Rats

Zulaikha Sahhugi, Nor Fadilah Rajab, Zakiah Jubri

Introduction: Honey is a natural product that rich in antioxidants such as polyphenol. Various studies have shown that polyphenol are effective in preventing cellular oxidative damage that can lead to diseases, aging and death. While calorie restriction (CR) was already proven method to reduce cellular oxidative damage

Aim/Objective: The main aim of this study was to evaluate the effect of local gelam honey on oxidative damage of two months old rats and to compare its effect on calorie restriction (CR) treatment.

Methods: Twenty-four male Spraque-Dawley rats were divided into three groups; fed with plain water (control), supplemented with 2.5g/kg body weight of gelam honey and 40% of CR treatment for 8 months. DNA damage level was determined by comet assay and plasma malondialdehyde (MDA) by high performance liquid chromatography (HPLC).

Results: Results showed that supplementation of gelam honey and CR-treated group reduced DNA damage and plasma MDA level.

Conclusion: In conclusion, long-term gelam honey supplementation mimics to calorie restriction effect in reducing oxidative damage.

EP52

Efficacy and safety of Sitagliptin as a third oral anti-diabetic agent among patients on optimum dose of metformin and sulphonylurea but with poorly-controlled glucose levels

Hayati F, Amjed Hazim, Teguh Haryo Sasongko, Wan Mohd Izani Wan Mohamad, Juhaida Daud, Nik Soriani Yaacob, Siew Hua Gan, Wan Mohamad Wan Bebakar

This study evaluated the safety and efficacy of sitagliptin as an add-on therapy in type 2 diabetes mellitus patients (T2DM) who are not well-controlled despite receiving optimum dose of metformin plus sulphonylurea. In a 12-weeks, non-randomised, open labeled, single centre trial, T2DM patients (n=72) who were on optimum dose of metformin and sulphonylurea were additionally treated with 100 mg sitagliptin daily. Efficacy was indicated by changes in HbA1c and fasting plasma glucose (FPG) when compared to baseline. Patients with $\geq 0.5\%$ reduction in HbA1c were categorized as “responders”, while those who experienced 1) no change 2) $< 0.5\%$ reduction in HbA1c or 3) increase in HbA1c were categorized as “non-responders”. The safety of sitagliptin was assessed by the incidence of hypoglycaemia, changes in serum aspartate aminotransferase (AST), alanine transaminase (ALT), alkaline phosphatase (ALP), uric acid, urea and *creatinine levels*. The majority (65%) of patients were categorized as “responders”. Overall, 23.61% of patients achieved an HbA1c goal of $< 7\%$. FPG (-1.54 ± 1 mmol/l, $p < 0.05$), HbA1c (-1.46 ± 0.07 , $P=0.000$) and ALP (-8.88 ± 7.96 ; $p=0.005$) were significantly reduced in the “responders”. Serum sodium (0.9 ± 0.4 mmol/l, $p=0.014$), uric acid (40 ± 22.6 mg/dl, $p=0.001$) and *creatinine* (7.12 ± 0.19 mg/dl, $p=0.03$), increased slightly among the “responders” when compared to the “non-responders”. This study indicates that the combination therapy with sitagliptin to ongoing metformin and sulphonylurea is efficacious and safe. Although the sodium, *creatinine* and uric acid increased slightly in this study, they are still within the normal range. Sitagliptin is generally shown to have a Na-diuretic action which tend to increase serum creatinine and uric acid levels slightly. The increase in sodium, *creatinine* and uric acid levels could be due to higher sitagliptin metabolism among the “responders” which should be further investigated. In conclusion, sitagliptin is efficacious and safe to be used in combination therapy with metformin and sulphonylurea in patients without cardiac disease, impaired liver and renal systems.

EP53

Growth Hormone Secreting Pituitary Macroadenoma : A Challenging Case to Manage

Azhar AH, Lee SB, Azrin AS

Excessive production of the growth hormone (GH) is responsible for acromegaly. It is related to a pituitary GH-secreting adenoma in most cases. It is characterised by slowly progressive acquired somatic disfigurement (mainly involving the face and extremities) and systemic manifestations.

The rheumatologic, cardiovascular, respiratory and metabolic consequences determine its prognosis. The diagnosis is confirmed by an increased serum GH concentration, unsuppressible by an oral glucose load and by detection of increased levels of insulin-like growth factor-I (IGF-I) . Treatment is aimed at correcting (or preventing) tumour compression by excising the disease-causing lesion, and at reducing GH and IGF-I levels to normal values . Pituitary tumors consist 15% of all intracranial tumors.

We present a case of a 52 years old lady who presented with bilateral knee pain and noted to have acral changes. She was subsequently diagnosed to have growth hormone secreting pituitary macroadenoma with acromegaly. However, she did not have bitemporal hemianopia. Her IGF-1 level was raised to 481ng/ml and MRI showed a pituitary adenoma. She subsequently underwent endonasal endoscopic transsphenoidal approach and excision of the tumor.

EP54

**The preoperative anxiety among patients undergoing anesthesia in Surgical wards
at Hospital Universiti Sains Malaysia (HUSM)**

Suryanti, Z; Norazliah, S

Preoperative anxiety had shown significant association with prolong hospitalization, increased anesthetic and analgesic requirement and increased the risk of mortality. The goal of this descriptive cross-sectional study is to determine the preoperative anxiety among patients undergoing anesthesia in surgical wards at HUSM. This study also examined the difference of preoperative anxiety between male and female, and types of anesthesia. A total of 103 patients who were hospitalized in the four surgical wards HUSM were recruited using purposive sampling. Data were collected from December 2011 to February 2012 using self report State Trait Anxiety Inventory (STAI) and Amsterdam Preoperative Anxiety and Information Scale (APAIS) and were analyzed using SPSS version 18 for frequency, percentage, mean standard deviation and *p*-value. Ethical approval was obtained from Research Ethics Committee (Human), USM. The surgical patients preoperative anxiety level was at moderate level (92.2%) using STAI and were more anxious (56.3%) using APAIS. The study found that the patients' pulse rate is significantly associated with preoperative anxiety using APAIS ($p=0.018$). However, there is no significant difference on preoperative anxiety between gender using APAIS ($p=0.447$) and STAI ($p=0.114$) and type of anesthesia using STAI ($p=0.315$) and APAIS ($p=0.151$). The results show that surgical patients' were preoperatively anxious regardless of gender and types of anesthesia. Thus, nurses in surgical wards need to identify this problem and institute appropriate strategies to calm the patients before surgery.

EP55

A Unilateral Central Serous Retinal Detachment as a Presenting Feature of Hypertension with End Stage Renal Failure in a Young Adult

Kogilavaani J, Ibrahim Mohtar, Ismail Shatriah

Introduction: Serous retinal detachment is an uncommon feature in poorly controlled hypertensive patients. Asymptomatic hypertensive condition in young adults had been reported. We describe a rare occurrence of a unilateral serous retinal detachment of macula in a young male patient who was not known.

Method: Case Report

Case report: A 27-yr-old male with no comorbid presented with right eye sudden onset of blurring of vision for 2 days and headache that progressively worsened within 1 month. His visual acuity was 6/18 with pinhole on right eye and 6/6 on left eye respectively. Fundoscopy showed bilateral arteriolar narrowing, retinal hemorrhages, and cotton wool exudates suggestive of grade III hypertensive retinopathy. A well localized serous retinal detachment on the right eye involving the macula. His blood pressure was 170/110 mmHg. The central nervous system examination was unremarkable. Laboratory tests revealed elevated levels of blood urea (28.8 mmol/L) and serum creatinine (1259 mmol/L). Ultrasonography showed right parenchymal disease with hydronephrosis leading to hypertension. He was commenced on oral antihypertensive therapy and subsequently resulted in improvement in blood pressure and resolving macular oedema. His vision improved to 6/12 with pinhole on the right eye. He is planned for regular hemodialysis and then subsequently for renal replacement therapy.

Conclusion: Present of macular serous retinal detachment in a hypertensive patient may serve as indicator of malignant hypertension. Undiagnosed hypertension with end stage renal failure is an alarming situation for young patients. Prompt treatment to prevent other co-morbidities is essential.

EP56

EDCR - Stenting and Complications

Jessica MPT, Evelyn-Tai LM, Wan-Hazabbah WH, Adil H, Ramiza R, Baharudin A

Introduction: The issue of stenting in endoscopic dacryocystorhinostomy (EDCR) is one which has been discussed for the past decade. However, the evidence for stenting and the optimal duration of stenting is still inconclusive, as is the data regarding the complications associated with this technique.

Objective: To determine the effect of stenting and its duration on the incidence of complications in EDCR.

Method: A retrospective analysis of all patients who underwent EDCR for nasolacrimal duct obstruction in Hospital Universiti Sains Malaysia from 2007-2011.

Results: Stents were inserted in approximately 50% of cases. The success rate was similar in both groups, being 61.5 % in the stented group and 66.7 % in the non-stented group. The rate of complications also did not differ significantly. The duration of retaining the stent ranged from 2 months to 1 year, with most of the stents being removed by 4 months post-EDCR. Duration of stenting did not appear to affect the outcome.

Conclusion: Considering the similar success rates between stented and non-stented cases, weighed against the risks and detrimental factors associated with stenting, we advocate that for nasolacrimal duct obstruction treated by EDCR, stenting should only be considered in the presence of specific indications.

EP57

Danger of Preservatives In Eye Drops

Evelyn-Tai LM, Madhusudhan, Wan-Hazabbah WH, Ishak Siti-Raihan

Introduction: Preservatives in ophthalmic solutions are both a bane and a boon in clinical practice. Benzalkonium chloride, which is the most frequently used preservative in eye drops, has dose- and time-dependent effects on the eye. In this unusual case, the patient developed unilateral stromal opacity almost immediately after instillation of just one drop of topical tropicamide containing benzalkonium chloride.

Case Report: A 64-year-old gentleman with underlying hypertension and diabetes mellitus presented with painless progressive blurring of vision for one year. As part of a routine ophthalmological evaluation, dilation of both eyes with a drop of topical tropicamide was performed. Unfortunately, post instillation of this agent, the patient's left eye was noted to have developed stromal edema on the temporal side, which was attributed to the preservative benzalkonium chloride in the medication. Over the following weeks, there was no resolution of oedema despite administration of a topical steroid, and the visual acuity deteriorated to 6/30 (PH 6/21).

Conclusion: The significance of this case lies in the fact that toxicity secondary to benzalkonium chloride can occur even upon a single application of any benzalkonium chloride-containing drugs, and serves as a gentle reminder to clinicians to proceed with caution whenever the use of preservative-containing drops is deemed necessary.

EP58

Development Of Nomogram For Malay Pregnant Women With Health Problems

Izyani Karudin, Mohamad Suhaimi Jaafar, Ramzun Maizan Ramli

The Malaysian population is composed of a variety of ethnic groups, which differ considerably from each other. The aim of a retrospective cross sectional study was to establish reference values for fetal age assessment in Malaysia using Malay ethnic groups with health problems (gestational diabetes mellitus (GDM), hypertension, anaemia and asthma). The parameters of antenatal check-up (ANC), fetal ultrasound biometry and summary of labour for Malay pregnant women with health problems were compared with Malay pregnant women without health problems. Analyses of data were performed using SPSS software version 19 and differences in fetal biometry were assessed by *t*-tests. The data of this study were collected from Department of Obstetrics and Gynaecology, Hospital Raja Perempuan Zainab II (HRPZII), Kota Bharu, Kelantan. A total of 1660 data of ANC, 1844 data of fetal ultrasound biometry and 1375 data of summary of labour were recorded. The diseases of GDM, hypertension, anaemia and asthma were found to have more significant impact on ANC, fetal ultrasound biometry and summary of labour during pregnancy. Findings from this study will help the medical practitioner predicts the outcome of the pregnancy earlier to improve the foetus and mother health during pregnancy in this country.

EP59

Clinical Presentations, Risk Factors and Treatment's Outcome of Ovarian Cancer in HUSM – 10 Years Experienced

Mohd Pazudin I, Che Anuar CY, Nik Zaki NM, Mohd Shukri O

Objectives: To evaluate the clinical presentations, risk factors and outcomes of treatment in ovarian cancer patients.

Methodology: This was a retrospective study, conducted at HUSM between 1999 and 2008. It included all the 128 recorded cases of ovarian cancer, diagnosed and treated at HUSM.

Results: About 40.0% of the patients were nulliparous, 41% were multiparity and only 18.0% were grand multiparity. Others risk factors include; history of fertility treatment 6.3%, family history of malignancy (17.9%), history of hysterectomy (3.9%) and no history of breast feeding (42%). 82.8% of women presented with abdominal distension, 50.8% with abdominal discomfort and 77.0% with abdominal mass size ranging between 10 to 15 centimeters and above. About 48.5% were diagnosed with stage I, 9.4% with stage II, 33.6% with stage III and 8.6% with stage IV disease. Majority of the patients were treated with combination of surgery and chemotherapy (74.2%). About 65 patients had a good treatment response. The 2 years survival rate for the individual stage of the disease were 95.1% for stage I, 91.7% for stage II, 55.5% for stage III and 25.0% for stage IV. Death was recorded in 32 patients (25.0%), all deaths from advance stages and occurred within the 24 months following treatment.

Conclusion: Surgical stage of the disease at the time of diagnosis, histological type and treatment given play an important factors determine the prognosis of the patients,

EP60

A Rare Case of Bilateral Optic Perineuritis Resuming Retrobulbar Optic Neuritis in Teenage Boy

S Nurul Laila, L Kumar, Y Azhany, WH Wan Hazabbah

Introduction: Optic perineuritis is an uncommon variety of orbital inflammatory disease especially in the young.

Objective: To report a rare case of bilateral optic perineuritis mimicking retrobulbar optic neuritis in a teenager.

Method: A 20-year-old boy presented with subacute loss of vision bilaterally over 3 weeks duration. It was associated with pain on eye movement and superior visual field defect. Visual acuity in both eyes was 1/60. Relative afferent pupillary defect was positive in the right eye with decreased optic nerve function in both eyes. Confrontation test showed superior scotoma in the left eye and total scotoma in the right eye. Both eyes anterior segment examinations were unremarkable. Fundoscopy showed normal appearance of optic disc in both eyes. MRI orbit revealed bilateral retrobulbar perineural enhancement of the optic nerves which was more severe on the right side. All investigations including ESR were normal. The patient was treated according to the ONTT regime. However, oral corticosteroids was tapered slowly over a period of 4 months. Final visual acuity improved to 6/7.5 RE and 6/12 LE. Other optic nerve functions also improved.

Conclusion: Bilateral optic perineuritis mimicking retrobulbar optic neuritis is a rare condition. MRI is important to distinguish these two conditions. The prognosis is good with prompt treatment and longer period of corticosteroid therapy.

EP61

The Predictor Factors of Diabetic Retinopathy by Severity among Type 2 Diabetes Mellitus in HUSM

Nurul Jannah Ambak, Aniza Abd Aziz, Nor Azwany Yaacob, Siti Raihan Ishak

Introduction: Diabetic retinopathy (DR) is emerging as one of the important cause of visual impairment and blindness in both developing and developed countries.

Objectives: To describe the proportions of DR according to severity and its predictors among Type 2 DM patients in Hospital Universiti Sains Malaysia.

Methods: A cross sectional study was conducted using retrospective medical record review of patients with DR attending Ophthalmology Clinic, Hospital USM from 2005 to 2011. A total of 216 DR patients' medical records were retrieved and reviewed. Socio-demographic, clinical parameters, co-morbidity, treatments, diabetes characteristic and DR severity outcome (mild, moderate, severe non-proliferative diabetic retinopathy (NPDR) and proliferative diabetic retinopathy (PDR)) information were extracted. Descriptive statistics and Multiple Ordinal Logistic Regression were analyzed using Stata SE/11.

Results: The mean (SD) age of DR in this study was 56.06 (9.98) years old. Majority were Malay (86.11%) and half were male (50.93%). Proportion of mild NPDR was 48.6% (95% CI: 40.0, 60.0), moderate NPDR was 28.2% (95%CI: 22.0, 40.0), severe NPDR was 6.9% (95% CI: 4.0, 11.0) and PDR was 16.2% (95%CI: 10.0, 22.0). Four significant adjusted predictors that influenced the DR severity were duration of DM more than ten years (OR: 3.33; 95% CI: 1.85, 5.99; p -value < 0.001), nephropathy (OR: 2.28; 95% CI: 1.32, 3.92; p -value 0.003), higher HbA1c in percent (OR: 1.14; 95%CI: 1.02, 1.27; p -value < 0.018) and abnormal total cholesterol (OR: 2.63; 95% CI: 1.50, 4.59; p -value 0.001).

Conclusion: Diabetic patients having DM more than 10 years, having nephropathy, increase HbA1c and abnormal total cholesterol were at increased risk of developing more severe DR.

EP62

Knowledge on Research and Attitude about Research Utilization among Nurses in Surgical Wards, Hospital Universiti Sains Malaysia (HUSM)

Luciana Liew, C.J., Norazliah, S. & Jayah, KP.

Research plays an important role in the continued improvement of nursing practice. The applications of research findings can address specific challenges such as the process of linking nursing interventions and patient outcomes. The purpose of this descriptive cross-sectional study is to determine the knowledge on research and attitude about research utilization among surgical nurses. This study also examined the difference in attitude about research utilization between groups of nurses with difference years of clinical experiences. A total of 107 nurses from nine surgical wards HUSM were recruited in this study using stratified random sampling. Data were collected from September to November 2010 using self-report questionnaire and were analyzed using SPSS version 18.0 for frequency, percentage, mean, standard deviation and *p*-value. Ethical approval was obtained from Research Ethics Committee (Human), USM. The surgical nurses knowledge on research was at the low level of knowledge (M = 3.13, SD=1.18), but having positive attitude toward nursing research (M=2.33, SD=0.73). However, attitude about research utilization was unfavourable (M= 61.38, SD=15.59). The findings demonstrate that there is a significant difference in attitude about research utilization between groups of nurses with difference years of clinical experience in surgical wards ($p=0.021$).The results show that surgical nurses' had lack of knowledge on research, but had a positive attitude toward research. This positive attitude with specific research education will enhance nurses in establishing an active nursing research culture and application of research finding to promote evidence-based practice in the workplace.

EP63

Effects of weight loss program on prothrombotic markers among obese subjects

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Introduction: Obesity is associated with cardiovascular complication that may impair physiologic regulation of coagulation and fibrinolytic activities that induces a prothrombotic state. Several prothrombotic markers have been identified to be harmful and contribute to the complications of this disease. Therefore, effective lifestyle modification is the recommended strategies to reduce weight and the risk of having associated health problems.

Objective: The purpose of this study was to determine the effects of weight loss program on the changes of prothrombotic markers.

Methodology: Assessment was carried out on 28 obese subjects aged 26 to 62 years old. The subjects were involved in weekly weight loss program consisted of exercise (brisk walk and aerobic dance) and 12 modules of nutritional education for 12 weeks duration. Ten ml of blood specimen was drawn from all the subjects. The blood was tested for fibrinogen levels using Clauss method and plasminogen activator inhibitor type-1 (PAI-1) levels using enzyme immunoassay technique (ELISA).

Results: Paired t-test analysis showed there was a significant reduction ($p < 0.001$) of mean BMI from $35.78 \pm 0.82 \text{ kg/m}^2$ (baseline) to $33.22 \pm 0.67 \text{ kg/m}^2$ (post-intervention). There was a significant decline ($p < 0.001$) in fibrinogen level; $3.73 \pm 0.14 \text{ g/l}$ (post-intervention) if compared to baseline ($4.29 \pm 0.19 \text{ g/l}$). Similarly, there was a significant ($p < 0.001$) decrement in PAI-1 from $50.47 \pm 3.99 \text{ ng/ml}$ to $28.60 \pm 2.37 \text{ ng/ml}$ at post-intervention.

Conclusion: This weight loss program is considered a successful intervention program based on the positive findings of cardiovascular risk factors. This is shown by reduced prothrombotic hazard markers in obese subjects.

EP64

Adult Optic Atrophy in HUSM

Jessica MPT, Evelyn-Tai LM, Wan-Hazabbah WH, Zunaina E, Raja-Azmi MN

Introduction: Optic atrophy is the end result of any disease which results in damage to the axons between retinal ganglion cells and the lateral geniculate body. Optic nerve behaves like a white matter lesion in that once damaged, it cannot regenerate. This results in visual dysfunction and changes in the colour and structure of the optic disc.

Objective: To determine the clinical presentation and aetiology of optic atrophy in adults

Method: Retrospective case series of patients who were diagnosed with optic atrophy in Hospital Universiti Sains Malaysia between 2007 and 2011 with a minimum of one year follow-up.

Results: Our study involved 72 patients whose ages ranged from 17 to 74 years old. Males formed 63.9% of our sample. Optic atrophy was unilateral in 50% of patients. The main presenting symptom was visual blurring (70.8%), followed by visual blurring associated with neurological symptoms (20.8%). The aetiology of optic atrophy included space-occupying lesions (28%), trauma (15%), vascular lesions (15%), inflammation/infection (10%), and congenital/hereditary causes (7%). The most common space-occupying lesion was meningioma (9 out of 20 cases).

Conclusion: The most common presenting symptom was visual blurring, followed by visual blurring associated with neurological symptoms. The main cause of optic atrophy in adults was space-occupying lesions. Of these, the underlying pathology was commonly a meningioma.

EP65

Flaps–The Future Of Endoscopic Dacryocystorhinostomy?

Evelyn-Tai LM, Jessica MPT, Wan-Hazabbah WH, Adil H, Ramiza R, Baharudin A

Introduction: Endoscopic dacryocystorhinostomy (EDCR) is becoming increasingly popular as an alternative to external dacryocystorhinostomy. In the endeavour to achieve improved outcomes, various modifications of this technique have been attempted.

Objective: To determine the effect of mucosal flap preservation on the outcome of endoscopic dacryocystorhinostomy (EDCR).

Method: A retrospective review of all EDCR cases performed between 2007-2011 in Hospital Universiti Sains Malaysia was carried out. In this period, 25 cases of EDCR were performed, involving 24 patients with nasolacrimal duct obstruction. All patients were managed under the combined expertise of an ophthalmologist and otolaryngologist. Outcome of EDCR was assessed based on symptomatic relief of epiphora and anatomical patency (via lacrimal syringing and nasal endoscopy). The operation was considered a success only if all three the above criteria were fulfilled at one year follow-up post operation. Logistic regression was used to determine the association of flap creation with a successful outcome.

Results: Flaps were inserted in 50% of cases (13 out of 25). The success rate of EDCR at one year post operation was 64%. Mucosal flap creation was significantly associated with an improved outcome (adjusted OR 7.926; CI 1.172 – 53.620, p=0.034). The main post-operative complication was adhesions, which occurred in 50% of cases. There was no significant association between flap preservation with complications.

Conclusion: There was a significant association between mucosal flap preservation and a successful outcome in endoscopic dacryocystorhinostomy for nasolacrimal duct obstruction. Creation of a mucosal flap was not significantly associated with complications.

Progressive Proptosis: A Rare Manifestation Of Craniofacial Fibrous Dysplasia

Julieana M, Win Mar @ Salmah, Wan-Hazabbah WH

Introduction: Fibrous dysplasia is a benign condition that can cause devastating disfigurement when it involves craniofacial bone especially in young person.

Case report: We report a rare case of Fibrous Dysplasia (FD) of frontal and greater wing of sphenoid bone in a 19-year-old Malay man who presented with progressive proptosis of left eye for 5 years duration. Ocular examination revealed 6 mm axial proptosis in left eye with extraocular muscles movement limitation in all gazes. Computed tomography scan showed well-defined expansile lytic and sclerotic bone mass with soft tissue component within the mass located at inferior part of left frontal bone and greater wing of sphenoid bone. MRI revealed expansile bone lesion with heterogenous tissue component within the mass with no infiltration to the surrounding structure. He subsequently co-managed with Maxillofacial and Neurosurgery team. The patient was not keen for any invasive procedure and surgical intervention and was treated conservatively. He was currently under follow-up to monitor the progression of the disease.

Conclusion: Fibrous dysplasia may present as a slow, progressive proptosis. Radio imaging is vital in diagnosing FD.

EP67

**Amputation-free Time among Hospitalized Diabetic Foot Patients in Hospital
Universiti Sains Malaysia (HUSM)**

Nor Hakimah Ab Rahman, Aniza Abd Aziz, Wan Mohd Zahiruddin W.Mohammad, Abdul
Nawfar Sadagatullah

Introduction: Diabetic foot ulcer is a major health care problem leading to hospitalization, morbidity, amputation and mortality in diabetic patients.

Objectives: The aim of this study is to determine the amputation-free time and median amputation-free among hospitalized diabetic foot patients in Hospital Universiti Sains Malaysia.

Method: A retrospective record review study was conducted among 231 hospitalized diabetic foot patients in Hospital Universiti Sains Malaysia from 1st January 2007 until 31st December 2011 followed by 1 year follow up. Patients' medical records were retrieved and reviewed. Socio-demographic, clinical characteristics and amputation endpoint status were recorded. The duration of amputation-free time was measured from the date of being diagnosed as diabetic foot until the date of amputation. Probabilities of amputation-free were calculated using the Kaplan Meier Product-limit Estimates (percentages with 95% confidence intervals).

Result: The patients' age ranged from 21 to 83, with mean (SD) was 56.9 (10.4) years. Majority were male (51.5%) and Malays (95.7%). The overall proportion of amputation due to diabetic foot was 88.7% which comprised of minor (76.6%) and major amputation (13.7%). The five-year overall, minor and major amputation-free rate after being treated as diabetic foot in Hospital Universiti Sains Malaysia were 37.7% (95% CI: 31.1, 44.2), 43.1% (95% CI: 35.9, 50.1) and 86.6% (95% CI: 81.1, 90.6) respectively. The median overall and minor amputation-free rates were 50.0 months and 58.0 months respectively. Otherwise, the median major amputation-free rate could not be determined because more than 50% of the patients survived.

Conclusion: Major amputation-free time of hospitalized diabetic foot ulcer patients in Hospital Universiti Sains Malaysia was shown to be higher than other studies.

EP68

Expression of c-erbB-2 in upper gastrointestinal tract carcinoma and its associations with metastasis

Sh. Emilia TS, Nor Hayati Yunus

Data of HER2 protein expression and gene amplification in upper GIT cancer is still conflicting but its expression is firmly established in adenocarcinoma of upper GIT and related with poor prognosis of the disease. This study determined and compared the expression of HER2 in esophageal carcinoma (ESC) and gastric carcinoma (GC) biopsies and correlates with metastasis and survival status. Our study was conducted on 66 cases of upper GIT carcinoma in which 30 cases were of GC and 36 cases were of ESC. All available tissue biopsies from archived paraffin embedded tissue blocks from Hospital Universiti Sains Malaysia between January 1998 until August 2011 were stained with Hematoxylin and Eosin followed by immunohistochemical stain for HER2. The results show 7(10.6%) out of 66 cases of upper GIT carcinoma were HER2 positive. HER2 positivity is found more in ESC than GC. Four (6.1%) of the positive cases were esophageal adenocarcinoma and one (1.5%) in ESCC. The other 2(3%) were intestinal type GC. Most of the cases with positive HER2 were moderately differentiated (9.1%). Only one (1.5%) of poorly differentiated was HER2 positive. Three positive HER2 cases (8.8%) showed lymph nodes metastasis. Six positive HER2 cases were still alive with disease within 1 year. Our findings suggest that there are variable expressions of HER2 interpretation in GC and ESC.

EP69

The clinical value of semi cystatin-c in hypertensive pregnancy

Fauziah Jummaat Azreen S. Adnan

Introduction: Cystatin C is a biomarker in renal injury, its role in pregnancy has not been exclusively investigated. Serum creatinine is insensitive in detecting early renal impairment especially in pregnancies.

Objective: To determine the correlation between cystatin c with birth weight, blood pressure, gestational age and its level with renal outcome.

Methodology: 64 hypertensive pregnant ladies participated in this cross sectional study. The study duration was 2 years from January 2009 until January 2011. All patients consented for blood taking, and blood samples were sent for cystatin C level and renal function test. Variables like birth weight, gestational age and blood pressure were taken. Correlation between cystatin C and the variables were tested by Pearson correlation coefficient. Simple logistic regression was applied to determine renal outcome and cystatin level.

Result:The mean cystatin C level throughout pregnancy in study subjects were 0.92mg/L (sd: 0.07) The average birth weight of the babies was 2.82Kg. Approximately all patients had 36.86 weeks of pregnancy. The average systolic and diastolic blood pressure was 152.9 and 93.7 respectively. Cystatin C level is a predictive factor for renal outcome since p value < 0.05. 1 mg/L increase in cystatin C level has 22.73 times the chance to have higher stage of Chronic Kidney Disease.

Conclusion: Cystatin c is a useful biomarker in determining the outcome of hypertensive pregnancies and renal outcome.

EP70

Practice And Barriers To Colorectal Cancer Screening Among Primary Care Providers In Malaysia

Norwati D, Harmy MY, Norhayati MN, Amry AR

Introduction: Colorectal cancer is the commonest cancer in males and the second commonest in females in Malaysia. Participation in colorectal cancer screening among patients is extremely low. Lack of physician recommendation is the most commonly reported barriers.

Objectives: To determine the practice and barriers to colorectal cancer screening among Primary Care providers in West Malaysia

Methods: A cross sectional study was conducted from August 2009 till April 2010 involving primary care providers from 41 primary care clinics in West Malaysia. Self-administered questionnaires were used and consisted of the practice on recommending faecal occult blood test (FOBT) and barriers related to patient, test/system and health care provider factors. Descriptive analysis was done using Statistical Program for Social Sciences (SPSS) version 12.0.

Results: There were 116 Primary Care providers responded making a response-rate of 87.9%. Most (79.3%) respondents did not practice recommending FOBT to asymptomatic average risk individuals. Unavailability of FOBT test in health clinic was the barrier selected by 31.9% of respondents. Other barriers were mainly patient factors which were patient's urgency (25.8%), poor patient awareness (23.3%), patient refusal (22.4%), patient noncompliance to instructions (20.7%) and patient's fear of test result (17.2%). Lack of time was only selected by 9.5% of the respondents.

Conclusion: Majority of primary care providers did not recommend screening for colorectal cancer on asymptomatic average risk individuals and were unaware of the availability of FOBT in health clinics. Awareness to screen for colorectal cancer should be improved in both patients and Primary Care providers.

EP71

A Case Of Pregnancy-Associated Breast Cancer: A Tactful Case To Manage

Azhar AH, Lee SB, Fauziah, Azrin AS

Breast cancer is the most common cancer in women. Since 1991, breast cancer has been the second leading cause of cancer admissions in Ministry of Health hospitals, and deaths due to breast cancer is in fourth place in terms of cancer deaths accounting for 6-8% of all cancer deaths . The coexistence of breast cancer with pregnancy and lactation is relatively infrequent. However, in a concomitant association of breast cancer with pregnancy and nursing women, the tumour grows rapidly, metastasizes soon, and carries a poor prognosis.

A 33 years old lady, G3P2, presented with progressively left breast swelling of 8 months' duration; and rapidly increasing in size post delivery. Clinically left breast was hugely enlarged, tense and firm. CT scan showed a complex cyst of the left breast, without any evidence of lymph node or distant organ involvement. Subsequently, ultrasound guided biopsy has confirmed the diagnosis of breast cancer. She undergone left mastectomy and level II axillary clearance subsequently. Post operatively was uneventful and she was planned for adjuvant chemotherapy.

EP72

MRI Patterns of Brain Injury in Neonatal Hypoxic-Ischemic Encephalopathy: Correlation with Clinical Findings and Ultrasound Scan

Rozliana Johari

Background: Neonatal HIE is a major cause of infant mortality and morbidity with long-term neurological sequelae, estimated to occur in approximately 1 to 2 per 1000 live births. Early and accurate diagnosis is helpful not only for assessing prognosis but also for making treatment decisions. Clinical evaluation alone is often inadequate to provide an accurate prognosis. MRI is an established investigation in the evaluation of neonates with suspected HIE. Different patterns of neonatal hypoxic-ischemic injury by conventional imaging sequences have been described in the Western countries. However, there is no proper study found yet here regarding the imaging findings in comparison with clinical diagnosis. The sensitivity of diffusion imaging in neonatal brain ischemia is also has not fully assessed. USG cranium is believed to be less sensitive than MRI for detecting hypoxic ischemic injury.

Objectives: To study MRI patterns of neonatal HIE comparing to clinical diagnosis, association between conventional and diffusion imaging and sensitivity of MRI comparing to USG in detection of neonatal hypoxic brain injury.

Methods and Materials: A total of ten full term neonates with clinical diagnosis of HIE admitted to NICU of Hospital Universiti Sains Malaysia were enrolled in this study. HIE severity was assessed according to Sarnat and Sarnat's staging system. All subjects underwent MRI and USG examinations within 6 weeks after birth once these subjects were stable for transportation. All images were interpreted by an experienced pediatric radiologist.

Results: 60% of subjects were clinically diagnosed moderate HIE (Grade II) and 40% with severe HIE (Grade III). Abnormality in the cortex was seen in 40% of subjects, 20% with abnormality in basal ganglia/ thalamus, 10% in both cortex and basal nuclei and another 30% had normal studies. Patterns of injury correlates with the severity of the HIE grading. No significant difference between conventional and diffusion imaging in detecting brain injury ($p>0.05$) with fair Kappa agreement. MRI was found to have 100% sensitivity as compared to USG in detecting brain injury with diagnostic accuracy of 60%.

Conclusion: MRI patterns of neonatal hypoxic-ischemic injury correlated with the severity of the HIE grading. No significant difference between conventional and diffusion imaging in detecting brain injury. MRI is proved to be more sensitive for the detection of the injury as well as to evaluate the extension of it. . However, USG should still be regarded as a screening test in neonates.

EP73

A Quantitative And Clinical Study Of Photographing Ct Films Of Head Injuries

Hafiz K.A. Git, Wan Ahmad Kamil, Abdul Rahman Izaini Ghani, Win Mar @ Salmah Jalaludin

Background: Digital capture of radiographic film is used for transmission of radiological studies in between geographically distant locations, usually for purpose of consultation. This is necessary in centres without proper teleradiology facilities. Quantitative and clinical aspects need to be considered as digital capture is a lossy procedure. Traumatic brain injury (TBI) is a neurosurgical emergency that commonly presents to hospitals without neurosurgeons. The lack of proper teleradiology infrastructure results in the use of digital capture of printed head CT images for transmission purposes. We quantitatively study the modulation transfer function (MTF) of one method (digital photograph of a printed CT film) and assess the clinical impact of any missed findings.

Method: *Part 1:* Using a slanted edge template printed on radiographic film mounted on a viewbox, photographs are taken and the MTF is calculated for various settings.

Part 2: Eighty-four head CTs were collected retrospectively and printed onto radiographic film. Photographs were taken at high-quality (digital SLR camera at moderate resolution and compression) and low-quality (phone camera at its highest resolution). Findings were evaluated by a radiologist and any discrepancies were assessed by a neurosurgeon to determine change in emergent management.

Results: Factors adversely impacting the MTF curve were camera type (DSLR performed best, followed by compact camera and phone camera), resolution, compression and ISO setting. Ambient lighting and viewbox luminance had no effect on the MTF curve. The rates of missed findings were 42.9% and 68.8% for the high- and low-quality photographs respectively. Clinically significant discrepancies determined theoretically, likewise, were 6% and 10.7% respectively. The significant findings most often missed were subdural haemorrhage and temporal contusions.

Conclusion: Higher-quality camera and settings demonstrate better performance. Digital capture of printed CT film for TBI using a digital camera can result in theoretically significant discrepancies which need further studies assessing actual patient outcome.

EP74

5 Year Renal Survival In Biopsy Proven Lupus Nephritis Female In HUSM

Fauziah Jummaat, Azreen Syazril, Adnan, N. Zamli N. Jid

Introduction: Lupus Nephritis is a complication of systemic lupus erythematosus affecting the kidneys of female in their reproductive group. The renal survival of this condition after treatment with cytotoxic drugs (cyclophosphamide) has never been studied in our hospital.

Objective: This study is focused on the renal outcome of these patients, the primary outcome is time to renal replacement therapy (hemodialysis).

Method: A retrospective study using patients' records in Pathology Laboratory and Medical Record of HUSM dated from 2007 to 2012. Kaplan-myer curve was drawn to explore the relationship between years and cumulative survival. Patients are classified to those above and below 40 years old.

Results: 49 patients of Lupus nephritis patients enrolled in this study. The overall renal survival was 83.3% in the first year, 79.7% in the second year, 70.8% in the third year, fourth year and fifth year. 10 from 31 patients below 40 years needs hemodialysis while 3 from 9 patients in age group above 40 years old requires renal replacement therapy

Conclusion: The renal survival of these patients are generally good. This may be due to the specific management and treatment can be initiated according to Lupus Nephritis classes. Younger age groups are affected more requiring hemodialysis in view of the disease activity were still active in this age group.

EP75

**Psychological Profiles Of Incarcerated Offenders As Foundations For
Institutionalised Rehabilitation In Reducing Recidivism**

Geshina Ayu Mat Saat, Zaihairul Idrus, Nor Hafizah Nor Hamid

Introduction: The current Malaysian practice is to incarcerate property-based offenders for a stipulated time and requiring offenders to undergo an in-house character strengthening module covering religious or moral education, and vocational training. The underlying psychological variables that lead to offensive behaviours are not addressed and may lead to recidivism. To this end, the objective of the study is to identify psychological profiles of incarcerated offenders in order to provide a better foundation for institutionalised rehabilitation programmes.

Method: The study design was a comparative study between one group of Malaysian normal and prison samples. The study was a cross-section of men from a) 15 Malaysian states (n=286) and b) three types of offences (n=61: 19 for housebreaking, 20 for motor vehicle theft, and 22 for theft in dwelling) from one prison. A test battery containing items representing seven psychological scales were distributed and collected after obtaining written voluntary participation. The scales were: aggression, morality, excitement seeking, internal motivation, cautionness, intellect and empathy.

Results: A comparison of descriptive statistics indicated higher values in the prison group than the normal group. In the prison sample, ten significant correlations at the 0.01 level were observed including: aggression and cautionness, moral behaviour and excitement-seeking, moral behaviour and motivation, moral behaviour and intellect, moral behaviour and empathy, and excitement-seeking and intellect.

Conclusion: The findings indicate differences between normal and prison populations. The findings are discussed in relation to psychological profiles of criminals. The main implication is that determining and considering psychological profiles are important in designing institutionalised rehabilitation programmes in order to reduce recidivism.

EP76

The Impact of Chest Radiograph Interpretation on Initial Clinical Management in Department of Accident & Emergency, HUSM, Kelantan

Wan Irnawati Wan Ab Rahman

Background: The chest radiograph is considered one of the most complex radiographs to interpret. Several studies have evaluated chest radiograph interpretation in the emergency department, and found considerable discrepancy rate with second reading by radiologist. The aim of this study is to determine the accuracy of chest radiograph interpretation by emergency and radiology residents and to assess their impact on initial patient management at A&E level.

Methods and Materials: We assembled a prospective series of patients who presented to the Department of A&E, HUSM and had chest radiograph performed between June 1 and June 30 2011. Two groups of study observer consisted of radiology and emergency residents participated in our study. Each group interpreted 230 chest radiographs, approximately two third containing a clinically important index finding. Diagnostic performances of both residents were determined; in term of sensitivity, specificity and accuracy in comparison with radiologist. Inter observer agreement was also tested by the kappa co efficient. The effect of misinterpretation on treatment recommendation was also investigated.

Results: The emergency residents have high diagnostic performance, with overall sensitivity of 92.6 ± 3.4 , specificity of 81.0 ± 5.0 and accuracy of 90.0%. However, they have lower specificity in detecting different specific chest radiograph abnormalities, ranged from 61.3% to 100% as compared to radiology residents with specificity ranged from 86.1% - 100. The lowest specificity recorded for emergency residents were in detection of interstitial line and consolidative changes. Moderate agreement obtained for both radiology and emergency residents with radiologist in term of chest radiograph interpretation with kappa value of 0.517 and 0.521 respectively. Formal radiological report leads to 47% change of initial patient management, especially among the discharged patient.

Conclusion: Chest radiographs interpretations by the emergency residents were generally accurate. However considerable percentage of patients benefited from radiologist input. These findings highlight the importance of routine reporting of chest radiographs by radiologist, and emphasise the need for improving interpretive skills among emergency and radiology residents.

EP77

Comparison between brachial artery reactivity using ultrasound in non-coronary artery disease and coronary artery disease male patients

Zalina Mahmud

Background: According to previous studies, measurement of peripheral vascular function can accurately exclude CAD in subjects undergoing non invasive assessment for atherosclerosis. Degree of brachial artery dilatation following forearm occlusion by ultrasound are commonly used as a measure of endothelial function of coronary artery.

Objectives: 1- To determine measurement of brachial artery pre and post exercise in CAD and non-CAD candidates 2- To determine degree of dilatation in both CAD and non-CAD groups 3- To compare dilatation measurement of brachial artery between non-CAD and CAD candidates

Methodology: High resolution ultrasound examination of right brachial artery was performed on 43 candidates (26 non-CAD, 17 established CAD candidates.) Brachial artery measurement pre and post exercise following occlusion were measured in two different sites namely at 2cm and 10 cm for each candidates. 3 dimension of measurements taken namely anteroposterior(AP), width(W) and craniocaudal(CC).

Results: Brachial artery dilatation was significantly higher in non-CAD as compared to CAD candidates (12.5% to 14% vs 9% to 11%). There was also significant differences in mean measurement of brachial artery between pre and post exercise in non-CAD and non-CAD candidates with p-value<0.05.

Conclusion: Results showed significant relationship between degree of brachial artery dilatation in prediction of patients with or without CAD. Ultrasound of brachial artery can be used as a screening tool for early detection of CAD before symptoms occurs.

EP78

A Survey Study Of The Prevalence Of Iron Deficiency And Iron Deficiency Anemia In Infants And Children's In Ibb City

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Introduction: Iron deficiency anemia (IDA) is a common problem all over the world, which attacks mainly infants and children.

Objectives: The aim of the study was to estimate the prevalence of ID and IDA in infants 6–24 months old and children 24-72months in Ibb City, located in the middle part of Yemen Republic, and to identify the environmental risk factors associated with it.

Methods: The study sample consisted of 150 (101 infants, 49 children's) was randomly selected through regular visiting to Al-Thaurah general hospital and Motherhood and Childhood hospital in Ibb City. All data from the questionnaire and blood tests were analyzed using SPSS software. One Way ANOVA test was used for correlation between IDA and all relevant environmental factors.

Results: The results showed that prevalence of iron deficiency anemia (IDA) in this study was 68 with (45.3%) while 29 with (19.3%) was iron deficiency (ID) in all clinical samples studied in Ibb City. The prevalence of (IDA) between infants was 50 out of 101patient with (33.3%) while was 18 out of 49 patient with (12%) at children's. On the other hand, the results showed statistically significant difference ($P < 0.05$) between IDA and Children age, parent's income, patient's health, parent's education. Regarding type of nutrition and delayed introduction of solid foods after 4 months, the result also showed statistically significant ($P < 0.05$) between IDA prevalence and type of nutrition and delayed introduction of solid foods after 4 months.

Conclusion: In conclusion prevalence of iron deficiency anemia is high among 35days – 12-month-old Ibb City infants and many risk factors for iron deficiency anemia were related. To face this problem, there should be a program carried by government specially Ministry of Education and Ministry of Health targeted both of children and their parents directly and practice exclusive breastfeeding from birth to 6 months of age, and introduce complementary foods at 6 months of age (180 days) while continuing to breastfeed are recommended.

EP80

Obesity prevalence among women in different socio demographic areas in the Gaza strip

Rima R.R El Kishawi, Wan Manan Wan Muda, Soo Kah Leng, Yehia Abed

Background: Currently there are very few studies that represent the prevalence of overweight and obesity among women in Palestine.

Objectives: The objective of this study was to determine the prevalence of obesity among women aged 18 to 50 years in three different geographical areas in the Gaza Strip.

Methods: A cross-sectional design was used to assess obesity prevalence among 357 mothers from three different locations in the Gaza Strip: the Jabalia refugee camp, Gaza City, and El Garrara village.

Weight, height, and circumferences for mothers were measured, the mothers were categorized according to World Health Organization Health (WHO) recommendation for body mass index (BMI), overweight was when BMI was $\geq 25 \text{ kg/m}^2$, and obesity $\geq 30.0 \text{ kg/m}^2$, and for mothers with circumferences more than 83.0cm considered to be overweight.

Results: The prevalence of overweight and obesity in Jabalia, Gaza city, and Al Garrara were found to be (35.9%, 30.9%), (26.0%, 31.0%), and (47.5%, 20.0%), respectively. The findings on mothers waist circumference were 92.0cm in Al Garrara, 91.3cm in Jabalia, and 90.3cm in Gaza city, respectively.

Conclusions: The results of this study showed a high prevalence of obesity among mothers are an important based line for future monitoring of obesity, and highlight a need for urgent intervention to combat obesity in Palestine.

EP81

Silica from rice husk as fillers in dental composites

Mohammed Noushad, Noor Sheeraz Che Zulkifli, Ismail Ab Rahman, Adam Husein,
Dasmawati Mohamad

Introduction: Rice husk contains up to 20% silica, depending on the variety. Several applications of silica from rice husk have been studied, but, its application as fillers in dental composites has been overlooked. The silica used in commercial dental composites is generally prepared using the classical sol-gel method using expensive and toxic precursors. In the current study, silica was extracted from rice husk using mild acids, and used in the fabrication of dental nanocomposites. The flexural strength of the fabricated dental composites was evaluated.

Objectives: To extract spherical nanosilica from rice husk and use it as fillers in the fabrication of dental nanocomposites.

Materials and Methods: The precipitation method was used for the extraction of silica from rice husk. An edible organic acid was used as the precipitating acid. Propanol was used as the solvent, in order to obtain silica particles in spherical shape. After fabrication of the dental nanocomposites, the flexural strength, which is an important mechanical property, was tested.

Results: The precipitation method in conjunction with the use of propanol resulted in extraction of silica particles that are spherical in shape. The flexural strength of the fabricated dental nanocomposite was 78 MPa which is well above the ISO (ISO 4049) minimum requirement of 50 MPa.

Conclusions: It was possible to extract spherical silica nanoparticles from rice husk and use them as fillers in the fabrication of dental nanocomposite with a high flexural strength. Since rice husk is an agricultural waste product, its use could considerably reduce the cost of dental nanocomposites.

EP82

Isolation of Human Hertwig's Epithelial Root Sheath Cells: A Novel Technique

Manal Farea, Adam Husein, Ahmad Sukari Halim, Nurul Asma Abdullah, Khairani Idah Mokhtar, Chin Keong Lim, Zurairah Berahim, Kasmawati Mokhtar, Rani Abdulqawee

Introduction: Hertwig's epithelial root sheath (HERS) cells play a pivotal role during root formation of the tooth and are able to form cementum-like tissue. Although several *in vitro* studies have been performed to isolate and characterize HERS cells and certain derivative cell lines but none has attempted to establish a homogenous HERS cells in culture.

Objectives: The aim of the present study was to isolate and culture primary HERS cells using a newly developed selective digestion method to develop a homogenous HERS cell line.

Materials and methods: The periodontal ligament tissues of 40 teeth were isolated and digested in a solution of collagenase type I and dispase, the single-cell suspensions were plated with 3 mL of keratinocyte growth medium. The primary heterogeneous cell culture was further processed using a selective digestion method with the application of trypsin-EDTA for 2 minutes, which led to the detachment of fibroblast-like-cells, with the rounded cells attached to the culture plate. Characterization of the cells was performed at passage 3.

Results: The HERS cells displayed a typical cuboidal/squamous-shaped appearance. Characterization of the HERS cells using immunofluorescence staining and flow cytometry analysis showed that these cells expressed pan-cytokeratin, E-cadherin, and p63 as epithelial markers. Moreover, RT-PCR confirmed that these cells expressed epithelial-related genes, such as cytokeratin 14, E-cadherin, and Δ Np63.

Conclusion: In conclusion, our data show that HERS cells were successfully isolated using a selective digestion method, thus enabling future studies on the roles of these cells in the formation of cementum-like tissue *in vitro*.

EP83

Development Of Recombinant Human DNA Topoisomerase II Alpha (Top IIA) Expression System Using Yeast

Chan M. K., Rahmah, N., Chew A. L., Khoo B. Y.

Our study aims to clone Top IIA coding region as producing in house Top IIA, with recombinant DNA technology, can facilitate our research in screening of anticancer compounds that require large amounts of this enzyme. In this study, coding region of Top IIA was successfully PCR from MDA-MB-231 using Phusion DNA polymerase. The cDNA that is 4296 bp in length was then ligated into digested vectors, pPICZ C-alpha and transformed into Top'10 electrocompetent cells by electroporation. Positive clones that contain the desired target were then selected on LB-Zeocin agar, and the vectors with desired insert were extracted from the clones. The clone with correct coding region was then propagated, and approximately 5-20 µg of purified vectors was concentrated and linearized with *Sac* I. The linearized plasmid was then transformed into the *pichia* yeast strain, GS 115, and the positive transformants were selected on YPDS-Zeocin agar. The growth colonies and genomic DNA of the colonies were further analyzed by PCR using the vector primers, AOX-F and AOX-R, to check the integrants of the insert into the yeast genomic DNA. Gel electrophoresis of PCR products showed two intended bands, 2.2 kb and 4.6 kb, indicated the original of AOX and integrant of Topo IIA genes in the yeast genomic DNA. These vectors will be used as the source for the production of active enzyme for our future research. This study may produce a sufficient amount of Top IIA to facilitate our research in screening of potential anticancer agents from local natural resources.

EP84

Stature Estimation From Foot Outline (3D) Measurements In Chinese Of Malaysia

Nataraja Moorthy T, Saufee Affandi Bin Sarippudin

Introduction: Dimensional relationship between body segments and the whole body has been the focus of scientist, anatomist and anthropologists for many years. Stature Estimation from measurement of various body parts is of particular interest to many anthropologists, anatomists and forensic scientists for its importance in medical-legal cases. Human footprints caused by feet are valuable physical evidence in forensic investigation. The partial or complete 3D Foot impressions can be found on loose soil, mud, clay and so on at crime scenes. Also offenders often tend to remove their footwear either to avoid noise or to gain better grip in climbing walls, etc, while entering or exiting (1). Foot outline is defined as the line tracing around the outer margins of the fleshed foot. The foot outline provides the size parameters of the fleshed bare foot and also represents the boundaries of the foot's impression in soft soil, mud, or any other substance that produces a three-dimensional (3D) footprint impression (2). Examination of barefoot impressions is important especially in Asian countries where the majority of the rural populations walk barefooted because of socio-economic and climatic conditions (3). Limited studies have been conducted for stature estimation using foot outline measurements (1-3).

Objective: The present study attempts the estimation of stature from various foot outline length measurements viz. toes to heel lengths in Chinese, the second largest ethnic group in Malaysia and to derive regression equations for forensic application during crime scene investigation.

Methods: Following the standard procedure, 400 bilateral foot outlines were collected from 100 adult males and 100 adult females Malaysian Chinese ranging in age from 18 to 55 years. Tracing technique of foot to get the foot outline (3D) for the purpose of stature estimation was accepted in the 1912 Geneva International agreement among physical anthropologists (4). Ethical approval was obtained from USM Ethics Committee (Human). Selection of participants was based on inclusion and exclusion criteria. The statures of the subjects were recorded by electronic measuring rod Seca 242. By considering the diurnal variation, height measurements were taken at a fixed time in the evening (5). Researchers indicated that there is a strong positive correlation exists between one's stature and footprint or foot outline (1-3).

Researches indicated that the diagonal axis measurements provided better correlation than parallel axis measurement (1-2). All diagonal heel to toes measurements of left (OLT1-OLT5) and right foot outline (ORT1-ORT5) were analysed. The data were statistically analyzed using PASW (Predictive Analytics software, version 18) computer software. Bilateral asymmetry was calculated for each of the foot outline measurements and tested its significance. Pearson's correlation coefficients (r) between stature and foot outline length measurements were obtained and simple linear regression analysis method was employed for stature estimation since prediction of stature estimation is more accurate and reliable with regression analysis method (6).

Result: Ten regression equations for stature estimation from diagonal foot outline measurements were derived. The stature is found to be positively and strongly correlated

to various foot outline length measurements in males, females and mixed gender. The standard errors of estimate (SEE), R^2 and p value were calculated. The mixed gender shows comparatively higher correlation coefficients (0.71-0.75) than those of individual males (0.68-0.70) and females (0.56-0.68) groups. Regression equations present lower standard error of estimate values in females (3.653-4.110 cm) than males (4.114-4.263 cm) and show slightly higher value in mixed gender (5.645-5.942) Bilateral asymmetry exists and the first toe shows high asymmetry compared to other toes. The derived regression equations were verified by conducting blind tests. The calculated values are found close to the actual value.

Conclusion: It is concluded that regression equations for stature estimation using foot outline for Chinese in Malaysia were derived successfully for forensic application. The regression equations are population specific and are unfit for any other population either in Malaysia or any other countries in the world.

EP85

The 1 Repetition Maximum (1RM) Weight Prescribed Using Manual 1 RM Test And Isokinetic Machine On Knee Extension Muscle Strength In Healthy People

M. A., Ummul Adawiyah, S., Ida Hasni, J., Bahman & N., Nor Ashikin

Background and Objective: In physiotherapy practice, strength training was conducted almost every day. Hence it can be considered as important for therapist to measure muscles strength. Common methods that were used to evaluate the muscles strength are the manual one repetition maximum (1 RM), isokinetic machine test and predicted equation. Among those methods, manual 1RM can be consider as a gold standard evaluation used by physiotherapist to identify a patient's muscles strength before and after strength training (Levinger et al., 2009; Abadie, 2000). However, the manual 1RM method was found to be time consuming in terms of test duration and equipment setting. Hence it was suggested that, the 1RM test using isokinetic machine could overcome this problem. However the ability of isokinetic machine to prescribe a person 1RM is still indistinct. Therefore, aims of this study is to identify the level of agreement between the manual 1 RM testing and isokinetic machine in prescribing a person 1RM weight.

Subjects and Methods: A total of 65 subjects were sampled, with majority of the subjects are female (45 (69.2%) and (20 (30.8%) was male. Subjects were investigated according to the study protocol at Physiotherapy High Performance Gym, UiTM Puncak Alam and done among the Faculty of Health Science students of Universiti Teknologi Mara. Statistical analysis was performed with paired-sample t-test and Bland-Altman analysis.

Results: A paired-samples t-test was conducted to evaluate the impact of the intervention on the weight 1 RM on the muscle testing. The mean difference between manual 1 RM and isokinetic machine is significantly different ($p < 0.001$, 95%CI 7.98, 12.14). This indicate that the mean weight prescribed using isokinetic machine is highest than the manual 1 RM. The Bland-Altman plot shows that the SD agreement between Manual 1RM and the Isokinetic machine is between ± 1.96 with a high value of 6.4 and a low value at -26.5.

Conclusion: The isokinetic machine is not an accurate method to determine a person 1 RM.

Sequence Analysis Of Quinolone And Fluoroquinolone-Resistant Salmonella Typhi Isolates From Kelantan Malaysia

Maizan M, Che Salma CWZ, Fadhilah K, Zaidah AR, Haslizai H, and Phua KK

Introduction: Typhoid fever remains as an endemic and global health problem especially in developing countries. The basis of typhoid fever treatment is an antimicrobial therapy. Three first-line drugs (chloramphenicol, ampicillin, and co-trimoxazole) are recommended for typhoid treatment. However, multi drug resistance (MDR) *Salmonella Typhi* (*S. Typhi*) strains that are resistance to these three drugs have emerged. Since then, fluoroquinolone (ciprofloxacin), quinolone (naladixic) and third-generation cephalosporins have become drugs of choice for treating typhoid fever. In the past few years, *S. Typhi* strains resistance to quinolone (naladixic acid) and decreased susceptibility to ciprofloxacin have been reported in the Asia regions. This resistance is usually caused by single or double mutations at Ser-83 or Asp-87 of the quinolone resistance-determining region (QRDR) of *GyrA* and Ser-80 of *ParC* genes.

Objective: To characterize the quinolone and fluoroquinolone-resistant *S. Typhi* isolates from Kelantan based on the mutation of QRDR region of *GyrA* and *ParC* genes.

Methods: The mutation of QRDR of *GyrA* and partial *ParC* genes of 34 quinolone and fluoroquinolone-resistant isolates and 1MDR *S. Typhi* isolate from Kelantan were determined by direct sequencing. Ty21 vaccine strain was used as a control for drug sensitive *S. Typhi*.

Results and discussion: A single mutation at Ser-83 to Phe of the QRDR of *GyrA* gene was only observed in the MDR *S. Typhi* isolate that is resistance to chloramphenicol, ampicillin, and co-trimoxazole, but not in the ciprofloxacin and naladixic resistant-isolates. No mutation was observed on *ParC* gene of all the isolates including the MDR *S. Typhi*. These results contradict to the previous findings where most of the ciprofloxacin or naladixic-resistant isolates have either single or double mutations at Ser-83 or Asp-87 codon of *GyrA* gene and at Ser-80 of *ParC* gene.

Conclusion: Only the MDR of Kelantan *S. Typhi* isolate has mutation at Ser83 to Phe but not with the isolates that are resistant to either ciprofloxacin or naladixic.

EP87

CAL 27 Cells With Higher Passage Number Developed Invasive Traits In Culture

Chai Yuan Lin, Khairani Idah Mokhtar, Ong Ming Thong

CAL 27 (ATCC® CRL-2095™) is one of the commonly used squamous epithelial carcinoma cell line, originating from human tongue tissue. It was reported that the polygonal shaped CAL 27 cells had a doubling time of 35 hours and the cells were not able to grow in semi-solid medium. However, the cells were observed to undergo morphological and behavioral changes with increasing passage number. Thus, the present study was conducted to determine the morphological and physiological changes in CAL 27 cell line with time. Images of the cells were captured and morphology of the cells from different passages was compared. Cell doubling time was determined using Trypan Blue assay and exponential regression analysis. Soft agar assay was performed to determine the ability of the cells to grow in semi-solid medium. With increasing passage number of cells, the morphology of CAL 27 cells change from polygonal into more elongated shape. Furthermore, CAL 27 cells of passage number > 10 showed a cell doubling time being shortened to 16-28 hours compared to 35 hours as reported earlier, and the cells were able to grow in semi-solid soft agar. These results indicated that CAL 27 cells would transform into a more invasive cell type with characteristics of more elongated morphology, shorter cell doubling time and enhanced ability to grow in semi-solid medium, when passage number was increased under conventional culture condition.

Characterization of Matrix Metalloproteinases (MMPs) and CTCF Protein Expressions in Several Human Cancer Cell Lines in vitro

Nur Aizura Mat Alewi , Mohammad Syaiful Bahari Abdull Rasad

Collagenases are proteins from the matrix metalloproteinases (MMPs) family which are comprised of secreted and membrane-bound endopeptidases that play a crucial role in tumor invasion. Previous studies have suggested that collagenases, such as Collagenase 1 (MMP-1) and collagenase 3 (MMP-13), may have a significant influence in the expression of CTCF proteins, which have also been implicated in numerous cancer studies. However, the depth of involvement of these proteins in the fundamental molecular mechanisms of cancer remains to be poorly known. This study aims to determine the degree of MMP-1, MMP-13 and CTCF protein expressions in several human cancer cell lines and to ascertain its probable involvement in cancer development. The qualitative expressions of the proteins in skin melanoma (A375), breast cancer (MCF-7) and cervix cancer (HeLa) cells were demonstrated through Western Blot analysis. Analysis of the results showed that the strongest expression for MMP-1 was detected in HeLa cells, while MCF-7 and A375 cells produced very weak/non-detectable protein expressions. In contrast, both MMP-13 and CTCF proteins were highly expressed at varying degree of expressions in all three cells, with HeLa cells producing the strongest protein expressions. Overall, the results depict a prominent presence and the probable involvement of MMP-1, MMP-13 and CTCF proteins in the development and metastasis of cancer. Thus, it is believed that obtaining a detailed understanding of MMPs and its interacting partners may be vital for future endeavors in respect to the possible design of therapeutic MMP strategies for prospective medical applications.

EP89

Confirmation Of WIF-1 / EGFR Interaction Via Co-Immunoprecipitation

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Tumorigenesis is often viewed as a multi-stage process. The activity of key players involved in cancer cell signaling pathways may serve as alternative cancer treatment for current devastating cancer therapy. Due to the early involvement in cell development, the interaction between epidermal growth factor receptor (EGFR) and wingless and integration site growth factor (WNT) signaling pathways are highly focused in clinical research. Previous *in silico* protein-protein docking experiments had indicated a possible interaction between WIF-1 and EGFR through EGF-like domain found on WIF-1. In the current study, we have confirmed the interaction of WIF-1 and EGFR using cross-linking and co-immunoprecipitation assays. Immunoreactive bands correlated to the ligand-receptor complex were detected in Western blotting using anti-EGFR antibody or anti-WIF1 antibody, indicating the capability of WIF-1 to bind to EGFR, probably through the EGF-like domain found on WIF-1. The finding has confirmed our *in silico* binding of WIF-1 to EGFR was energetically favorable (-616.40 kcal/mol), as compared to EGF/EGFR binding (-627.18 kcal/mol). Such finding might provide a review and drastic change in current practice of cancer treatments given to cancer patients. The lowest docking energy of WIF-1/EGFR binding calculated using HEX server was. This was comparable to that of, indicating a possibility for WIF-1 to bind to EGFR through its EGF-like domain.

EP90

Study On The Effect Of Various Concentration Of IL 6 (Interleukin 6) And IL17 (Interleukin 17) Cytokines On Osteoblast Proliferation And Differentiation

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Introduction: Osseointegration being a crucial solution in bone reconstruction, often faces complication in its compatibility with the implant due to rejection of own immune system. Therefore, extensive studies are being carried out to enhance osteoblast development to minimize the implication.

Objective: This study focuses IL-6 and IL-17A in determining various concentrations and their effect towards proliferation and differentiation of osteoblast.

Methods: Various concentrations (50ng/ml, 25ng/ml, 10ng/ml and 5ng/ml) of IL-6 and IL-17A were tested on both murine osteoblast cell line (MCT3T-E1) and human fetal osteoblast (hFOB) using MTS and ALP assay. MTS assay were carried out at 24, 48, 72, 96 and 120 hours respectively, while ALP assay at day 1, 3, 7, 10 and 14.

Results: Study indicated MCT3T-E1 cell line to be more stable in reflecting effectiveness in proliferation and differentiation compared to hFOB. Both cell lines expressed similar pattern in concentration dependent manner, although less significant difference were observed among the concentrations. Nonetheless, in MCT3T-E1, concentration at 10ng for IL-6 and IL17A is expected to be more suitable for further approach.

Conclusion: IL-6 and IL-17A enhance proliferation and differentiation in both MCT3T-E1 and hFOB cell line.

EP91

Malaysian Human Variome Project Database

Atif AB, Halim Fikri Hashim, Nurul Fatihah Azman, Wan Khairunnisa WJ, Ang Mia Yang, Sarifah Hanafi, Ab Rajab Nur-Shafawati; Wan Isa Hatin, Zilfalil BA, A. Zubaidi AL and Malaysian Node of the Human Variome Project

In year 2010, a new horizon towards studying genetics started in Malaysia with the launching of Malaysian Node of the Human Variome Project. This project brought a big impact to the country by establishing a country specific genetic database. The database comprised of SNPs, CNVs and Mutational databases. These databases have been maintained since their launch by updating the contents, recording extensive information over the genetic heterogeneity of the Malaysian ethnic groups, primarily data obtained through lab based inventions and data obtained during the meta-analysis. The SNP database contains 291718 SNPs obtained by genotypic analysis of 103 healthy individuals belonging to six Malay sub-ethnic groups. The Mutation database comprised of reported and analysed mutation(s)/variation(s) of genes that are related to common genetic disorders in Malaysia. Till date a total of 143 mutations from 16 different genes in various ethnic groups in Malaysia have been submitted and reported by researchers all over Malaysia. The CNV database currently focuses on the neuromuscular disorder and the data for Spinal Muscular Atrophy and Duchene Muscular Dystrophy is available. This database will be complementing other databases in South East Asia such as Thailand and Singapore Variant and Mutation databases providing the crucial information on the genetic background of the population in this region as well as the migration and disease patterns at the molecular level. We believe this database in Malaysia provides a local national genetic data with a strong impact on global clinical impact on international research while studying the genetic implications for those in countries with similar ethnic background.

EP92

Restoration Of SHP-1 Expression By Demethylating Agent 5-Azacytidine In Imatinib Resistant BCR-ABL Chronic Myeloid Leukaemia

MF Johan and HA Al-Jamal

Introduction: Imatinib, a tyrosine kinase inhibitor specifically targets BCR/ABL protein and induces haematological remission in patients with chronic myeloid leukaemia (CML). However, majority of CML patients treated with imatinib develop resistant under prolonged therapy. *BCR/ABL* mutations are associated with failure of imatinib treatment in many CML patients. SHP1, a tyrosine phosphatase that negatively regulates JAK/STAT signalling pathway, is frequently absent in CML due to gene methylation. 5-azacytidine (5-Aza), an inhibitor of DNA methyltransferase is a demethylating agent that has shown activity against AML and MDS by reactivation of silenced tumour suppressor genes.

Objectives: To test the hypothesis that restoration of SHP1 expression in resistant CML cells treated with demethylating agent induces the sensitivity towards imatinib.

Methods: We developed an imatinib resistant *BCR/ABL* CML cell line (K562R) and induced SHP1 expression using 5-Aza. Gene expression assays using TaqMan® Array Human JAK/STAT Pathway was performed for both 5-Aza treated and non-treated resistant cells in Applied Biosystem 7500 Fast Real-Time PCR System. The sensitivity towards imatinib was determined using MTS assays. The apoptosis analysis was also performed using annexin V-FITC binding assays.

Results: 5-Aza restored SHP1 expression by 6-folds in imatinib resistant CML cells treated with 5-Aza. The IC_{50} of imatinib on 5-Aza treated K562R cells was 300 nM compared to 4000 nM for untreated ($Z = -2.323$, $P = 0.02$). Moreover, the apoptotic cells in 5-Aza treated K562R was 59% compared to only 20% in untreated ($P < 0.001$) at 300 nM imatinib.

Conclusion: The restoration of SHP1 expression in 5-Aza treated resistant CML cells may induces sensitivity response to imatinib and an increase in cell death. Our findings support the function of SHP1 as a negative regulator of JAK/STAT signaling pathway and may play important roles in the treatment of imatinib resistant BCR/ABL positive CML.

EP93

Effectiveness Of Imatinib Mesylate Over Etoposide In The In Vitro Treatment Of Both Sensitive And Resistant Chronic Myeloid Leukaemia

Roslina Husaini, Munirah Ahmad, Zubaidah Zakaria

Introduction: Chronic Myeloid Leukaemia (CML) is a burden to cancer patients, occurring mostly in male adults. The lineage of CML is from myeloid cells. Imatinib mesylate is specifically used to treat CML in the clinic and Etoposide, to a lesser extent, is also used to treat CML.

Objective: Our aim was to study the effects of existing chemotherapeutic drugs to treat CML namely Imatinib mesylate and Etoposide in *in vitro* treatment on both sensitive and resistant CML cells.

Methods: Preliminary work included the screening of the expression of multidrug resistant genes namely MDR1, MRP1 and BCL-2 at the mRNA levels in both sensitive and resistant CML cell models K562 and K562/Adr, respectively, as determined by Reverse-Transcription PCR (RT-PCR). The cells were treated with Imatinib mesylate or Etoposide and cell viability was measured by MTS assay and student's t-test was used to determine the statistical significance.

Results: K562 resistant cells (K562/Adr) were found to express all 3 multidrug resistant genes (MDR) namely MDR1, MRP1 and BCL-2 whereas K562 sensitive cells only expressed MRP1 but very low, almost undetectable levels of MDR1 and BCL-2 genes. The results show that the IC_{50} for Imatinib on the 2 cell lines did not differ indicating that Imatinib is effective in the treatment of CML regardless whether the cells are sensitive or resistant to treatment. However, the IC_{50} for Etoposide in K562 sensitive cells ($50.6 \pm 16.5 \mu\text{M}$) was substantially lower than in K562/Adr resistant cells ($194 \pm 8.46 \mu\text{M}$) suggesting that the presence of MDR genes MDR1 and BCL-2 might be responsible for this effect.

Conclusion: From this preliminary finding, we can suggest that Imatinib mesylate is effective in the treatment of CML, both in sensitive and resistant cells.

EP94

Biosimilars Erythropoietin In The Management Of Renal Anemia In End Stage Renal Disease Patients In A Private Hemodialysis Center

Azreen Syazril Adnan

Introduction: Renal anemia in ESRD population is common, erythropoietin is endogenously produced specifically by alpha intercalated cells in healthy kidneys. It supports erythropoiesis, renal anemia occurs in Chronic kidney disease stage III, due to relative deficiency of erythropoietin in chronic kidney disease patients. Recently, biosimilar erythropoietin have been introduced in the market. It has clinical characteristics of erythropoietin alpha, however no local study have demonstrated its efficacy locally.

Study Objective: To look for incidence of renal anemia and hemoglobin level in End Stage Renal Disease patients on regular hemodialysis with biosimilar erythropoietin treatment.

Methods: 56 patients participated in this is cross-sectional study conducted in a private hemodialysis center in Johor. The results of full blood count (hemoglobin level) and iron study with a biosimilar product (binocrit) dose were collected from January 2013 to March 2013. Anemia was defined as any hemoglobin level below 10g/dL. Anemia was classified based upon the hemoglobin level, mild anemia (Hb level 9-10g/dL), moderate anemia (Hb level 7-8) and severe anemia (Hb level <6 g/dL). Patient was advised to take regular maintenance dose of iron tablets as prescribed and report in any occasion of blood transfusion or passing melena. Consent taken from the private dialysis owner and involved study subjects

Results: 55% of patients have hemoglobin below 10g/dL, 30% mild anemia, 23% moderate anemia and 2% severe anemia. Mean hemoglobin was 10g/dL and mean binocrit dose was 4000 units a week. 7.1% (4 patients) of patients did not require erythropoietin, 21.4% (12 patients) requires 2000 units per week, 51.8% (29 patients) requires 4000 units per week, 19.6% (11 patients) require 6000 units per week.

Conclusions: Renal anemia is common in End Stage Renal Disease patients on regular hemodialysis, majority of our patients require erythropoietin injections at least 4000 units per week to maintain their hemoglobin level around 10g/dL.

EP95

Evaluation Of Antimicrobial Activities Of Organotin (IV) Alkylphenyldithiocarbamate Compounds

Normah Awang, Siti Munirah Mokhtar & Noraziah M Zin

Antibiotic resistance is a global challenge to the populations and pathogenic bacteria tends to be multi-resistant towards a vast majority of antibiotics. The organotin(IV) compounds has proven to have an active biological activity as antimicrobial agent. Two series of a new compounds namely organotin(IV) ethylphenyldithiocarbamate and butylphenyldithiocarbamate which contained 6 compounds have been tested for their antimicrobial activity using disk diffusion and microdilution tests. These compounds were tested against variuos microbes namely *Bacillus cereus*, *Bacillus subtilis*, methicilin-resistant *Staphylococcus aureus* (MRSA), *Staphylococcus aureus*, *Streptococcus pneumonia*, *Acinetobacter baumannii*, *Escherichia coli*, *Klebsiella sp.*, *Shigella sonnei*, *Vibrio cholerae*, *Aspergillus fumigatus*, *Aspergillus niger*, *Candida albicans* and *Saccharomyces cerevisae*. Microdilution test was using two-fold dilution with the highest concentration of 5 mg/mL. Results showed that compound 3 and 6 have the antimicrobial activity towards most of bacteria and fungi tested. The lowest Minimum Inhibitory Concentration (MIC) value was obtained at 39 µg/mL for compound 3 against *V. cholerae* and compound 6 against *A. baumannii* Nevertheless, bacteriostatic or fungistatic effect was obtained for all compounds. In conclusion, triphenyltin(IV) dithiocarbamate compounds have a potential to act as an antimicrob agent.

EP96

Lack Of Association In CYP2E1 PstI Polymorphism To Gastrointestinal Cancer In Malaysia

Lucky Poh Wah Goh, Eric Tzyy Jiann Chong, Kek Heng Chua, Jitt Aun Chuah and Ping-Chin Lee

Introduction: *CYP2E1* encodes an enzyme that catalyzes various pro-carcinogens and can reduce oxygen molecule to highly reactive form in which may leads to DNA damage. *CYP2E1 PstI* polymorphism was previously reported to be a risk factor for gastrointestinal cancer (GIC) in many populations but still remain unclear in Malaysian.

Objective: To investigate the association of *CYP2E1 PstI* polymorphism at G-1259C site to the risk of GIC in Malaysia.

Methods: DNA was isolated from peripheral blood samples obtained from GIC patients ($N = 163$) and healthy individuals ($N = 387$). Polymerase chain reaction followed by restriction fragment length polymorphism (PCR-RFLP) on G-1259C polymorphic site of *CYP2E1* gene was performed using *PstI* restriction enzyme. The fragments were analyzed using agarose gel electrophoresis and confirmed by direct sequencing.

Results: The genotype distributions for cases and controls were in Hardy-Weinberg equilibrium ($\chi^2 < 5.991$, $p > 0.05$). The *c2* allele showed a reduced risk to GIC in Malaysian but was not statistical significant (OR = 0.98, 95% CI = 0.67 - 1.44). In genotypic analysis, the *c1/c2* genotype and combined *c1/c2 + c2/c2* genotype revealed a lower risk to GIC in Malaysian with OR (95% CI) of 0.96 (0.63 - 1.47) and 0.97 (0.64 - 1.47), respectively, but none of them achieved the statistical significant level. On contrary, *c2/c2* genotype was not statistically significant to increase the risk of GIC in Malaysian (OR = 1.18, 95% CI = 0.21 - 6.52).

Conclusions: This study suggests that there is a lack of association between *CYP2E1 PstI* polymorphism and the risk to GIC in Malaysia. However, further investigation by including gene-gene and gene-environmental interactions is required.

EP97

**Nutritional Composition, Sensorial Acceptance And Glycemic Index Of Muffins
Added With Young Corn Powder**

Che Anis Jauharah CMZ, Wan Rosli WI, Daniel Robert S, Nor Elyana A, Aziz Al-Safi I

Introduction: Young corn (*Zea mays*) cob is rich in dietary fibre and may be a useful additive for preparing healthy bakery products.

Objectives: To develop muffins added with young corn powder (YCP) and evaluate the effects on nutritional composition, sensorial acceptance and glycemic index.

Methods: Dried young corn was ground into powder (125 μ m) and added with muffins at 0, 10, 20 and 30% to partially replace wheat flour. Dietary fibre contents of each product were explored. Sensorial acceptance of every formulation was evaluated by a panel consisting of 60 volunteers, using seven-point hedonic scale. The most acceptable formulation was selected for glycemic index (GI) investigation. Twenty five grams of available carbohydrate portion of glucose (reference food) and muffins (test food) were given to 11 healthy subjects (5 males and 6 females) on 5 separate sessions after an overnight fast. Capillary blood was collected at fasting and 15, 30, 45, 60, 90 and 120 minutes postprandial.

Results: The dietary fibre content of YCP was 38.7%. Muffins added with YCP were significantly higher in dietary fibre than muffins without YCP ($p < 0.001$). Overall sensorial acceptance score of 30% YCP added muffins were better (4.80 ± 1.42) than 0% YCP muffins (4.17 ± 1.38). The incremental area under the blood glucose response curve of 30% YCP muffin (74 ± 12 mmol \cdot min/L) was lower than 0% YCP muffin (88 ± 13 mmol \cdot min/L). GI values of 0% and 30% YCP muffins were 58 ± 6 and 57 ± 9 , respectively.

Conclusion: Addition of YCP to the muffins increased the dietary fibre content, improved sensorial palatability and reduced the postprandial glycemic response.

Modulation Of Autophagy In Macrophages Infected With Recombinant *Mycobacterium Smegmatis*

Nur Ayuni Kadir, Maria E Sarmiento, Armando Acosta, Mohd-Nor Norazmi

Introduction: Autophagy is a constitutive and non-selective degradation process necessary for maintenance of cellular homeostasis. Autophagy is characterized by the expansion of isolation membrane around a portion of the cytosol to form a double membrane autophagosome, and sequestered in the lysosome for degradation. Induction of autophagy by physiological or pharmacological means has been shown to stimulate mycobacterial phagosome maturation and can also reduce the viability of *Mycobacterium tuberculosis* (Mtb) in infected macrophages. Atg6/Beclin1 is a principal regulator of autophagosome formation and activated by a few interacting proteins including Activating molecules in Beclin1 regulated autophagy (Ambra1).

Objective: The objective of our study was to develop recombinant *M. smegmatis* (rMS) overexpressing the autophagic gene, Ambra1, and to assess the capacity of the construct to trigger autophagy in infected macrophages.

Methodology: A plasmid containing the full-length Ambra1 gene (pNMN083) was transformed into *M. smegmatis* mc²155 by electroporation to form a recombinant *M. smegmatis* strain designated rMS083. Expression of the Ambra1 gene was performed by western blot analysis. Murine macrophage cell line J774A.1 was infected with the parent strain and rMS083 for 3 hours at the multiplicity of infection (MOI) of 10. Quantification of LC3II as a marker for autophagosome formation and maturation was performed by flow cytometric analysis and western blotting.

Results: The rMS083 was successfully constructed and Ambra1 protein expression was detected using specific anti-Ambra1 antibody. We further showed that LC3II formation and degradation in J774A.1 cells infected with MS and rMS083 actively induce autophagy above constitutive levels.

Conclusion: Recombinant *M. smegmatis* overexpressing Ambra1 (rMS083) has a capacity to induce autophagy in infected J774A.1 macrophages. Utilization of positive autophagy regulator gene, Ambra1, expressed by live *M. smegmatis* vector would be useful and promising for the development of candidate vaccine against tuberculosis.

EP99

In Vitro Comparative Hemostatic Studies Of Biodegradable 5%-N,O-Carboxymethylchitosan (NO-CMC)

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Background: Biodegradable chitosan have been intensively studied as alternative wound dressing due to the potential in hemorrhage control.

Objective: To study the hemostatic properties of biodegradable NO-CMCs *in vitro*.

Methodology: Two types of chitosans [70mL-5%-NO-CMC and 60mL-5%-NO-CMC (+0.45mL collagen)] each weighed 10mg were utilized. Four distinctive studies were conducted with 6 replicates. Degradation and swelling property of chitosan were measured by soaking in 5mL of PBS for (0-14 days). Full blood count of the chitosan adhered blood were evaluated at 3 different time intervals. A total of 1mL of whole blood was transferred to each tube and blood coagulation ability was observed. After 90minutes, tests were stopped and the image was captured. Effects of the blood platelets on NO-CMCs were assessed through Scanning Electron Microscope (SEM).

Results: Based on the calculated swelling ratio, 60mL recorded higher ratio with (0.35). This indicated that 60mL having higher absorption and moisture retention. For the biodegradable study, both chitosans showed reduction in weight loss by retaining their shapes even after 14 days. Strong relationship was noted between control and after 20 minutes of time intervals ($r=0.98$, $p<0.05$) in the erythrocyte and platelet counts for both chitosans. Large clots were formed on the NO-CMCs after 1.5 hour of immersion. Upon the SEM analysis platelets bound to chitosans, clumped and aggregated on the surface of the membrane layer.

Conclusion: Chitosan biomaterials which altered chemically function differently to expedite the hemostasis level. Both NO-CMCs were showed positive effects as biodegradable hemostatic agent and highly recommended for hemorrhage control in future.

EP100

Nitrate levels in groundwater near paddy fields in Kota Bharu and Bachok districts in Kelantan during pre-planting phase

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Nitrate is a chemical compound which consists of a nitrogen atom combined with three oxygen atoms. This compound is used in assorted chemical productions, primarily as fertilizers. Naturally, nitrate can be found in soil, water and food. It is soluble in water and can easily pass through soil to the water table beneath and can persist in groundwater for a long time. Concentration of nitrate may alleviate in groundwater as nitrate-based fertilizers are continually used every year. Many villages in Kelantan still depend on groundwater for daily purposes especially by people in rural areas due to non-existence or lack of quality piped water. This study was conducted from May to August of 2012. Five villages from each district were chosen for this study. A total of 87 wells (41 in Kota Bharu, 46 in Bachok) were selected after fulfilling a few criteria, including well location near paddy fields and used for drinking and cooking purposes. Houses using water filters were excluded as this may influence the reading. A YSI Professional Plus multimeter was used to determine nitrate levels in groundwater. Results showed that min nitrate level was 2.819 mg/L \pm SD 2.249 for both districts. Mean nitrate levels from wells in Kota Bharu district was 2.608 mg/L \pm SD 2.186 while for Bachok district, it was 3.007 mg/l \pm SD 2.313. There were no significant difference in nitrate levels between wells studied ($p > 0.05$). Only one well in Kota Bharu district contained levels of nitrate higher than the National Standard for Drinking Water Quality (NSDWQ) Malaysia of 10 mg/L NO_3^- . All readings obtained from wells in Bachok district were below the standard. This may be due to the raining season diluting the nitrate, or sufficient amount of nitrate fertilizers used while growing paddy during the previous planting season. It can be concluded that as far as nitrate is concerned, the groundwater would not cause detrimental health effects to those who use it for daily purposes.

EP101

Cloning, Expression And Purification Of Truncated Carboxyl-Terminal Domain Of Human Y-Box Binding Protein-1 (YB-1) In Bacterial Expression System

Tee Chee Wei and Shaharum Shamsuddin

Introduction: Human Y-Box-binding protein-1 (YB1) is a multifunctional transcription factor, implicated in cell growth and survival. Its tailed carboxyl-terminal domain (CD) protein possesses alternating basic and acidic amino acid clusters, which act as a charged zipper, facilitated in DNA or RNA binding and protein-protein interactions.

Objectives: Objectives of this study were to produce a set of truncated CD proteins using bacterial expression system and purify it using immobilized metal affinity chromatography.

Methods: Four truncated CD genes: C1, C2, C3 and C4 were amplified, cloned into plasmid pET16b and transformed into *E. coli strain BL 21 (DE3)* or its derivatives. Polyhistidine-tagged CD proteins were expressed under isopropyl- β -D-thiogalactopyranoside (IPTG)-induction and purified using Nickel-NTA (nitrilotriacetic acid) agarose. All the denatured proteins were resolved in 12% sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) and probed in Western blot using anti-His tag monoclonal antibody.

Results: Western blot showed aberrant migration of C1, C2, C3 and C4 proteins at 13, 17, 14 and 15 kDa, respectively in reducing conditions, compared to their calculated molecular weight of 9.30, 9.26, 9.01 and 8.74 kDa, respectively. All the proteins but not C3 were successfully purified using imidazole concentration of 130 mM in wash buffer and 400 mM in elution buffer. Evidence of abundant rare arginine codons was suggested to repress the overexpression of C3 protein in *E. coli*.

Conclusion: Here we successfully cloned and expressed the truncated CD proteins in *E. coli*. All the proteins were successfully purified except for C3 proteins.

EP102

Palm Oil Vitamin E (γ -Tocotrienol) And Hydrogen Peroxide Trigger Apoptosis On HepG2 Liver Cancer Cells By Activating The Same Signaling Transduction Cascade

Norwahidah Abdul Karim and Wan Zurinah Wan Ngah

Introduction: Tocotrienols has been reported as antitumor agents by modulating the changes of signalling molecules in apoptosis pathway (Ling et al. 2012).

Objective: The objective of this study is to determine the mechanism of action of apoptotic induction by γ -tocotrienol (GTT) and hydrogen peroxide (H_2O_2) in HepG2 liver cancer cells.

Materials and Methods: HepG2 cancer cells were treated with GTT, NAC-GTT (a direct antioxidant) and H_2O_2 . Apoptosis assays were conducted to determine the IC_{50} for both treatments. DNA laddering assays and morphological evaluation were performed to confirm the apoptosis of cancer cells after treatments. Proteins were extracted from the treated cells for western blotting technique to determine the changes of protein expression involved in signals transduction.

Results: Apoptosis rate was increased 7.4-fold and 6.8-fold ($p < 0.05$) after treatment with $170\mu M$ GTT and $5.5mM$ H_2O_2 respectively. Morphological evaluation of treated cells exhibited typical apoptotic features such as reduction in cell volume, nucleus fragmentation, chromatin condensation and formation of apoptotic bodies after both treatments. Despite the potent apoptotic effect of GTT, pretreatment of cells with NAC, reduced the apoptotic effects of GTT. Apoptosis rate was only enhanced 2.5 fold with NAC-pretreatment which was dramatically reduced compared to treatment with GTT alone and DNA fragments were not detected by DNA laddering assays. These findings suggest that oxidant/antioxidant equilibrium may be involved in GTT action. Both treatments also showed similar changes of proteins expression. Cell cycle protein expression (CDK 2, CDK 4 and CDK 6) and Bcl-2 were decreased. MAP Kinase proteins expression (ERK-1, ERK-2, MEK-2, JKN46 & p38) were also decreased. The active form of caspase-3 and caspase-8 were detected after 1 hour treatment and p53 protein expression were increased ($p < 0.05$).

Conclusion: The antiproliferative effect of GTT is comparable to H_2O_2 and both treatments induced apoptosis by activation of the same signaling molecules which involved in antiproliferation, cell cycle modulation and apoptosis pathway.

EP103

The 1 Repetition Maximum (1RM) Weight Prescribed Using Manual 1RM Testing Method And Brzycki Equation On Knee Extension Muscle Strength In Healthy People

N., Nor Ashikin, S., Ida Hasni, J., Bahman & M. A. , Ummul Adawiyah

BACKGROUND & OBJECTIVE: Manual 1RM can be considered as a gold standard evaluation used by physiotherapist to identify a patient's muscles strength before and after strength. To overcome the practical limitation of the manual 1 Repetition Maximum (1RM) such time consuming and muscle strain, a Brzycki equation was developed. However there is uncertainty whether the equation could prescribed the exact 1RM weight for a patient. Therefore, our main objective is to identify the agreement level between these 1RM evaluation methods which is the manual 1 Repetition Maximum test and the Brzycki equation.

SUBJECTS & METHODS: A total of 65 patients (45 (69.2%) female and 20 (30.8%) male) were tested for their one repetition maximum (1RM) in Physiotherapy High Performance Gym according to the study protocol at UiTM Puncak Alam. The Paired – Sample T- Test was used to calculate the differences between the weights prescribe using the manual 1RM and the equation. The Bland Altman plot was used to identify the level of agreement between the two methods.

RESULTS: T test indicate significant difference between the weights lifted using both methods with p value of 0.008. The Bland-Altman plot shows that the SD agreement between 1RM and The Brzycki equation is between ± 1.96 with a high value of 6.1 and a low value at -7.8.

CONCLUSION: The findings shows that there is significant bias between the weight prescribed using the manual 1RM and weight prescribed using The Brzycki equation . Therefore the Brzycki equation is not a suitable method to predict a person 1RM weight.

EP104

Effects Of Preservation And Irradiation On Water Vapor Transmission Rate Of Bovine Pericardium

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Effects of preservation methods on water vapour transmission rate (WVTR) of bovine pericardium before and after 25kGy gamma-irradiation were studied. The cleaned and disinfected bovine pericardium was preserved by either freeze drying or 85% glycerol. The samples were divided into four groups; freeze dried bovine pericardium (FDBP), irradiated freeze dried bovine pericardium (iFDBP), glycerolized bovine pericardium (GlyBP), and irradiated glycerolized bovine pericardium (iGlyBP). Gamma irradiation of 25 kGy was used to sterilize the samples. The untreated bovine pericardium was used as the control. The WVTR was determined by moisture analyzer using a special vessel according to water cup method of ASTM E 96 (Standard test for water vapor transmission of materials). The pericardium was placed on top of the special vessel (20cm²) containing 5 ml of saline solution and kept at temperature 40°C. The evaporative rate was recorded for 1 hour until a steady state was achieved. Results showed that the preservation methods caused significant differences ($p < 0.05$) in the WVTR of the bovine pericardium. However, the WVTR of the preserved bovine pericardium was insignificantly different ($p > 0.05$) after irradiation. The WVTR of the freeze dried bovine pericardium (2260-2268 gm⁻².24h⁻¹) was comparably lower than that of the control and the glycerol preserved (3885-3957 gm⁻².24h⁻¹), indicating that freeze drying would reduce the permeability of the bovine pericardium. Gamma irradiation at 25 kGy showed no effect on the permeability of any of the preserved bovine pericardium hence glycerol preservation followed by radiation sterilization is recommended for processing bovine pericardium that has potential use as wound dressing.

EP105

Mechanism Of Rapamycin & Pf4 Inducing Apoptosis In MCF-7 Breast Cancer Cells

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Objectives: Rapamycin & PF4 are effective pro-apoptosis drugs. Nevertheless, the mode of actions of these drugs needed further elucidations.

Introduction: Therefore, this study was performed to determine the synergistic effects of Rapamycin and PF4 pertaining to anti-tumor mechanisms by evaluating the apoptosis rate and cell cycle progression status in treated MCF-7 cell lines.

Methods: MCF-7 cells were seeded into 6-well plates at a density of 1×10^4 cells per well in 1ml DMEM medium containing 10% fetal bovine serum and PEG+normal saline. After 24h incubation, cells were treated with a series of concentrations of combined Rapamycin and PF-4 drugs solution and grown at 37°C , 5% CO_2 and 95% air for another 72hr. The effects of treatment on cell proliferation were determined using MTS assay. Simultaneously, the effects on apoptosis and cell cycle distributions were determined by flowcytometry after staining the cells with Annexin V-FITC labeled and propidium iodide, respectively.

Results: A combination of different concentrations of Rapamycin and PF-4 has a synergistic effect in growth inhibition of MCF-7 cell lines. The IC_{50} value of combined drug on the MCF-7 cells was determined as $0.4 \mu\text{g/ml} + 1.0 \mu\text{g/ml}$ ($p < 0.05$). The study indicated that treated MCF-7 cells showed significant induction of early apoptosis and attributed to inhibition of cell cycle progression, as compared to untreated cells.

Conclusion: Taken together, these results suggest that combined drug may produce potential anti-tumor synergy that warrants further investigation for its clinical applications.

A Comparison Of Different Cell Disruption Methods Of Glycerol Cyro-Preserved Human Amniotic Membrane On The Quality Of RNA

Rusidah, M.Y., Kannan, T.P., Suzina, S.A.H

Introduction: Cellular disruption is the first step in RNA isolation and one of the most critical steps affecting yield and quality of the isolated RNA. Human amniotic membrane (HAM), which lines the inner cavity of the placenta, has good mechanical strength and very scarce amount of cells that makes it hard to dissociate. Incomplete disruption may result in decreased yield as some of the RNA in the sample might be trapped in intact cells or tissues.

Objective: The aim of this study was to determine the efficiency of different cell disruption methods on glycerol cryo-preserved HAM on the concentration, purity and integrity of RNA.

Methods: Three different methods were employed; 1. using RNAqueous[®]-Micro Kit 2. Combination of homogenizer, TRIzol and RNAqueous[®]-Micro Kit and 3. Combination of mortar and pestle, TRIzol and RNAqueous[®]-Micro Kit. Concentration, purity and integrity of total RNA using the respective methods were examined.

Results: The concentration and purity at A260/280 of RNA for Methods 1, 2 and 3 were 20.5 ng/μl and 1.60, 42.2 ng/μl and 1.87, 2,908.6 ng/μl and 1.90 respectively. It was also observed that in Method 1 the cells always get trapped in the filter which spoils the filter. On gel electrophoresis, method 3 showed good integrity of RNA compared to methods 1 and 2.

Conclusions: The method employing mortar and pestle for cell disruption of cells from glycerol cryo-preserved HAM proved to be the best for obtaining high concentration, good purity and integrity of RNA compared to methods 1 and 2.

EP107

Telomeres And Ageing

Nurul Fatimah Mohamad Nasira, Thirumulu Ponnuraj Kannana, Siti Amrah Sulaiman,
Shaharum Shamsuddin, Azlina Ahmad, Stefan Stangaciu

Introduction: Telomeres are long repetitive DNA sequences of TTAGGG located at the end of the linear chromosomes. Telomeres are bound by shelterin proteins which function as the protection for the loop structure of telomere. This loop structure of telomere is crucial because it prevents the chromosome ends uncapped; resemble a DNA break and activates DNA repair mechanism. Telomerase is an enzyme responsible for maintaining the telomere length. In normal human somatic cells, telomerase however, is not expressed. Therefore, telomeres shorten with every cell division and as a consequence, limit the number of cell divisions. Replicative ageing or the limitation of cell division is thought to be a barrier to cancer formation. Besides that, it is thought that the loss of telomeres can induce anti-proliferative signals which result in cellular senescence. Other than that, it is believed that ageing and human aging-associated diseases such as atherosclerosis and cancer are the results of the replicative senescence which is induced by the shortening of the telomere length. Several studies on human premature ageing diseases such as aplastic anaemia and congenital dyskeratosis have been reported to be associated with the telomere length.

Objectives: To study the association between telomeres and ageing in humans.

Methods: A review of existing literatures on telomeres and ageing in humans was carried out to demonstrate the association between telomere and ageing in humans.

Results: The shortening of telomeres led to the mechanisms of ageing through replicative ageing, cellular senescence and replicative senescence.

Conclusion: Telomeres are associated with ageing in humans.

EP108

Correlation Between Lower Limbs Quantitative Ultrasound Measurement Of Bone, Muscular Peak Torque, Power And Anaerobic Capacity In Non-Active Malay Females

Xiao Li, Foong Kiew Ooi, Zilfalil Bin Alwi

Objectives: The aim of this study was to evaluate the correlation between lower limbs quantitative ultrasound measurement of bone, muscular peak torque, power and anaerobic capacity in non-active Malay females.

Method: Thirty-three healthy non active Malay females aged 18-25 year-old were recruited. The quantitative ultrasound measurements of bone speed of sound (SOS) in the legs were measured using Sunlight Miniomni™ Bone Sonometer. Muscular peak torque (strength) and power (knee extension and flexion in 60°, 180° and 300°) were measured using Biodex isokinetic dynamometer. Anaerobic capacity of the subjects was measured through Wingate test. Person correlations were performed to explore the relationships between measured parameters.

Results: The correlation coefficient (R) between non-dominant tibial SOS and muscular peak torque (PT) at 60°.s⁻¹ and 180°.s⁻¹ was 0.448 (p=0.009) and 0.388 (p=0.026) respectively. The R value between tibial SOS and muscular power was 0.386 (p=0.027). There was no statistical significant correlation between tibial SOS and anaerobic capacity (R=0.215; p=0.230).

Conclusion: There were statistically significant relationships between quantitative ultrasound measurement of bone, muscular strength and power. However, there was no close relationship between bone measurement and anaerobic capacity in non-active Malay females.

EP109

Simple Detection And Amplification Of D6 By One-Step RT-PCR

Tan Wee Yee, Khoo Boon Yin, Darah Ibrahim, Chew Ai Lan

Breast cancer is the most common cancer in women worldwide. The efforts in improving breast cancer therapy is an ongoing task in breast cancer research. D6, the CC chemokine binding protein, is a decoy chemokine receptor which was found to downregulate CCL2 and further inhibit the metastasis of breast cancer. The purpose of this study was to demonstrate that D6 can be easily detected and amplified by one-step RT-PCR with some simple manipulations. Maxime RT-PCR Premix Kit was used in the study to convert total RNA purified from breast cancer cells to D6 cDNA in a single reaction tube. The fidelity level of PCR was improved by adding an appropriate amount of Pfu DNA polymerase in the premix tube. Besides, a gradient PCR was performed to optimize the annealing temperature of gene specific primers of D6 to the template. With the use of gradient function of the thermocycler (Bio-Rad), a gradient of 58 to 65°C was fixed. The optimized PCR reaction mix was incubated at 45°C for a 30 minutes hot start, followed by initial denaturation at 94°C for 5 minutes. The reaction was cycled 35 times at 94°C of denaturation for 30 seconds, annealing at gradient temperatures for 30 seconds, elongation at 72°C for 2 minutes. Final extension was performed at 72°C for 10 minutes towards the end of the PCR process. The PCR products were gel electrophoresed at 100V for 60 minutes. The results showed that D6, with the use of respective gene specific primers, was best amplified at 61°C. The PCR product of the manipulated one-step RT-PCR was ligated to a TA cloning vector, pTZ57R/T and sent for DNA sequence analysis.

EP110

Virtual High Throughput Screening For Beta-Ketoacyl-(Acyl-Carrier-Protein) Synthase III Inhibitors

Vinoth K.R Mohan, Tan Chen Shen, Hasni Arsad, Razip Samian

Salmonella is a bacterium that causes one of the most common enteric (intestinal) infections– Salmonellosis. In states like Kelantan, salmonellosis is the most commonly reported cause of enteric disease.

Salmonella infections are zoonotic and can be transferred between humans and non-human animals. Many infections are due to ingestion of contaminated food. *Salmonella enterica* serovar typhimurium (Also called *Salmonella* typhimurium or abbreviated to *S. Typhimurium*) causes disease that is characterized by diarrhea, abdominal cramps, vomiting and nausea, and generally lasts up to 7 days. In immunocompromized people, that is the elderly, young, or people with depressed immune systems, *Salmonella* infections are often fatal if they are not treated with antibiotics.

Beta-ketoacyl-(acyl-carrier-protein) synthase III (KAS III) is an enzyme that belongs to the family of transferases, specifically those acyltransferases transferring groups other than aminoacyl groups and participates in fatty acid biosynthesis. KAS III is a crucial link between the fatty acid synthase-I and fatty acid synthase-II pathways producing fatty acids. The fatty acid produced is used as a protection against antibiotics.

The inhibition of KAS III can inhibit the production of the fatty acids hence preventing the production of the protective layer of the bacteria. Using the amino acid sequence a 3D structure can be built and used to perform virtual high throughput screening of natural products that is capable of blocking the activity of KAS III. The method used is called molecular docking. This step screens a database of small molecules for those that might act as ligands for a biological receptor. Small molecules that have successfully docked onto KAS III will be ranked by lowest binding free energy (BFE) and the best 2 ligands will be selected to study the binding further.

EP111

**Isolation Of Pathogenic Bacteria From *Holothuria Scabra* Jaeger At A Fish Farm
And Sea Cucumber Hatchery In Kudat, Sabah**

Ridzwan B.H., Nur Rafidah M.N. and Nurzafirah M.

Mass mortalities of sea cucumber *Holothuria scabra* Jaeger had occurred frequently in the fishery farms and sea cucumber hatchery in the recent years. This problem was due to the high stocking density, poor management and the susceptibility to disease during larval and juvenile stages. In this preliminary study, 11 species of pathogenic bacteria; *Acinetobacter baumannii/calcoaceticus*, *Bacillus cereus*, *Chromobacterium violaceum*, *Bukhoderia cepasia*, *Enterobacter cloacae*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa*, *P. luteola*, *P. oryzihabitans*, *P. putida* and *Vibrio alginolyticus* were isolated from a fish farm and a sea cucumber hatchery at Kudat, Sabah using biochemical tests API[®] 20 NE, API[®] 20 E and API[®] 50 CHB. However, *V. alginolyticus* and *P. Putida* were absent from the fish farm while there were six species of pathogenic bacteria were isolated from the sea cucumber hatchery; *A. baumannii*, *B. cereus*, *E. cloacae*, *P. aeruginosa*, *P. putida* and *V. alginolyticus*. Based on the water qualities (pH, DO, salinity, temperature) recorded, the fish farm was shown to be polluted. This preliminary study was done to ascertain the etiology of epidemic disease of sea cucumber.

EP112

**Antimicrobial Activity Of *Morinda Citrifolia*, Piper Betle And *Quercus Infectoria*
Against Urogenital Women Infections**

Nur-Leem Murshid, Siti Suraiya Md Noor and Zuraini Zakaria

The indigenous plants in Malaysia had been used widely to treat various ailments especially among women. Three different plants, *M.citrifolia*, *P.betle* and *Q.infectoria* had been selected in order to study the antimicrobial activity against urogenital infections causes in women. Water infusion, water decoction and methanol extracts of three plants were tested against four genus bacteria and single genus fungus using quantitative disc diffusion test and minimum inhibitory concentration were done. *P.betle* and *Q.infectoria* showed the highest antimicrobial activities against selected organism, while the *M.citrifolia* showed the most minimal activity. Traditional boiling method of plants to obtain herbal extract showed moderate activity against gram positive bacteria. However no activity against gram negative bacteria noted. It is concluded that, methanolic extraction is best herbal method. Nevertheless, traditional boiling method to some extend, still also have some medicinal benefit to treat urogenital infections.

**No Association Between Serotonin Transporter (5-HTTLPR) Gene Polymorphism
And Smoking Behavior Among Malay Males**

Nur Iwani Abd Rozak, Imran Ahmad, Harmy Mohd Yusuff and Ruzilawati Abu Bakar

Gene polymorphisms in the serotonergic system have been suggested to be associated with smoking behavior as nicotine increases serotonin release in the brain. The promoter region of the serotonin transporter gene (5-HTTLPR) that involved insertion/deletion polymorphism has been linked to susceptibility to smoking and ability to quit. The aim of the present study was to determine the association between the short/long promoter-based length polymorphism of the serotonin transporter gene (5-HTTLPR) and smoking behavior in Malay male subjects. A sample of 248 subjects of Malay male smokers and 248 Malay male non smokers were genotyped. The 5HTTLPR transporter polymorphism was determined by standard PCR method. Genotype was classified according to the presence or absence of the short (S) allele and the long (L) allele of 5HTTLPR. The frequencies of variant alleles S, L and heterozygous S/L in non-smokers were 39.1%, 11.3% and 49.6%, respectively. While in smokers, the frequencies of variant alleles S, L and heterozygous S/L were 41.1%, 12.9% and 46.0%, respectively. No significant differences in the frequency distribution of alleles were found between smokers and non-smokers ($\chi^2 = 0.73$, $P > 0.05$). The result suggest that the 5HTTLPR gene polymorphism is not a major determinant of smoking behavior in Malay populations.

EP114

Influence of the Educational Level on Design induced N240 and P300 Event Related Potential (ERPs) Components in Human Brain

Tahamina Begum, Faruque Reza, Alwani Liyana Ahmad, Izmer Ahmed, Wan Mohd Daud, Fardaus Ara Begum, Jafri Malin Abdullah

Objective: While education influenced on cognitive function in auditory oddball attention (P300 ERP component) task, little is known about the influence of education on visual attention task in case of the choice of geometric, organic shapes and their arrangements. This study aimed to clarify the influence of education to assess the cognitive function in visual stimuli as geometric, organic shape and their different arrangement on high, medium and low educational groups by using event-related potentials (ERPs) study. **Method:** By using a 128-electrode sensor net, we studied the responses of the choice of the geometric and organic shapes in experiment 1 and their arrangements in experiment 2 in the high, medium and low education groups. Total 45 healthy subjects (15 in each group) were recruited. ERP was measured while the subjects performed the like or dislike the geometric and organic shape in experiment 1 and like/dislike in geometric and organic shapes arrangement in experiment 2. Total 11 electrodes sites were analyzed to see the evoked N240 and P300 ERP components. **Results:** Upon the stimulus types, N240 ERP component was found mainly in temporo-occipital (T5, T6, O1 and O2) locations and P300 was distributed mainly in the central (Fz, Cz and Pz) locations in both experiment 1 and experiment 2 among groups in all stimuli. There were no differences between amplitudes and latencies of like and dislike in every stimulus in both experiments. Then we exclude like or dislike and fixed only geometric shape and organic shape stimuli during analysis. In experiment 1, N240 was evoked in temporo-occipital locations, but has no significant difference among groups in amplitude and latency in both experiments. Lower amplitude was found in low education group comparing medium one in Cz (geometric shape stimuli, $P= 0.05$ and organic shape stimuli, $P= 0.02$) and Pz (organic shape stimuli, $P= 0.02$) locations. Whereas, shorter latency was in low education group comparing high ($P= 0.006$) and medium ($P= 0.02$) education groups in geometric shape stimuli in Cz area only. In experiment 2, amplitude and latency of N240 has no significance difference among groups and stimuli. But significant shorter latency was found in low education group in Cz location comparing high education group (geometric, $P= 0.04$) and high (organic, $P= 0.04$) and medium (organic, $P= 0.04$) education groups. **Conclusion:** We concluded that the distributed origin of N240 is temporo-occipital areas and P300 is Cz and Pz areas in both geometric and organic shapes and also in case of their arrangements. Low amplitude and shorter latency in P300 ERP component in low education group prove that education greatly influence on cognitive function in their choice of geometric and organic shape and their arrangement.

EP115

The effect of PPAR γ ligand ciglitazone on IL-17 production

Mohd Khairi Bin Che Pa

T helper 17 cells (Th17) is a distinct T cell subset, independent of Th1 and Th2 cells lineage. Th17 cells are thought to be involved and responsible in many autoimmune diseases such as multiple sclerosis (MS), rheumatoid arthritis (RA) and experimental autoimmune encephalomyelitis (EAE), but its involvement in the pathogenesis of type 1 diabetes (T1D) is still unclear. A recent publication has suggested that Th17 cells play a role in the development of T1D, but this notion reveals that upon transferring into NOD recipient mice, Th17 cells converted into Th1-like profile and secrete IFN- γ . In this study, it was shown that Th17 cells have unique property or plasticity to change into Th1-like cells and cause diabetes. In vitro differentiation of CD4⁺ cells into Th17 cells could be induced with the combination of anti-inflammatory cytokine TGF- β and pro-inflammatory cytokine IL-6. The nuclear receptor peroxisome proliferator-activated receptor α (PPAR α) is reported to be a negative regulator of Th17 cell differentiation. It is suggested that the inhibition is via retinoic acid receptor-related orphan receptor α (ROR α). We study the influence of PPAR α agonists ciglitazone (cig) on the Th17 differentiation of non-obese diabetic (NOD) and non-obese resistant (NOR). We found that PPAR α activation increased the Th17 cell differentiation in NOD mice but did not effect Th17 cell differentiation in the control NOR mice. Our findings suggest that PPAR α was unable to dampen the differentiation of, probably committed, Th17 cells.

EP117

In vitro Selection of RNA aptamer targeted to 50 kDa OMP of Salmonella Typhi

Siti Mariam Mawarni Ramli, Asma Ismail and Khairul Mohd Fadzli Mustaffa

Typhoid fever is an important public health problem in many of the underdeveloped and developing countries. It has been estimated around 16 to 33 million cases and more than half a million deaths due to typhoid fever occur throughout the world annually. Fifty kDa outer membrane protein (OMP) of *S. Typhi* has been considered possible candidates that play a role during the infection of typhoid. As a new approach, RNA aptamers were used as a tool for *S. Typhi* detection. An aptamer is a synthetic, single stranded nucleic acid that folds up into unique three-dimensional structures, allowing them to bind specifically to biosurfaces such as peptides, amino acids, proteins and other molecules. The aptamers were generated using Systematic Evolution of Ligands by Exponential Enrichment (SELEX) technique. Cloning and sequence analysis of the aptamers demonstrated six candidates dominated the final pool of aptamer. The alignment analysis showed the consensus sequences AAAAC and CAAAA occurred in most of the transformants. The binding activity between the aptamers and the target protein was evaluated through electrophoretic mobility shift assays (EMSA). As a result, aptamer 1, 3 and 4 showed specifically bind to the 50 kDa OMP of *S. Typhi*. These three aptamers will be further tested to the other 50 kDa OMP bacterial strain for its specificity. These RNA aptamers could have the potential to be used as high affinity ligands for capture and subsequently detect *S. Typhi*. It also could be applied as biocomponents in development of biosensor for diagnosis of typhoid.

Potential protective effects of Tualang honey on bisphenol A induced the morphology of prepubertal rat uterus

Siti Sarah Mohamad Zaid, Normadiyah M Kassim and Shatrah Othman

Introduction: Bisphenol A (BPA) was identified as an endocrine disruptor which caused adverse effects on the reproductive system by reducing antioxidant enzymes. **Objectives:** To evaluate the protective effects of Tualang honey (contain high antioxidant properties) in preventing deleterious effects of BPA on morphology of prepubertal female rat uterus. **Methods:** Postweaning female Sprague-Dawley rat (P28) were divided into three groups (n=6): Group I (normal control) received vehicle treatment (corn oil), group II (positive control) received BPA at 10 mg/kg body weight while group III (experimental) received BPA at 10 mg/kg body weight and concurrently treated with Tualang honey at 200 mg/kg body weight. All rats were subjected to the treatments once daily for six weeks by oral gavage. **Results:** Rats in group II and III presented irregular estrous cycles with extended periods of estrous or diestrous phases (4 to 6 days). Compared to control rats, BPA induced morphological changes in the luminal endometrial epithelium exhibiting a foamy appearance, and increased in harbouring cavities. Epithelial cells appeared hypertrophic, elongated and tall columnar with less orderly in position and had basally located nuclei with condensed chromatin. Indeed, there were reduced interstitial spaces between the stromal cells, with the glands smaller and less in number. The myometrium appeared to have less collagen fibers among the uterine myocytes. Treatment of Tualang honey reduced the morphological changes with less in foamy appearance and harbouring cavities with more substantial interstitial spaces between stroma cells. The thickness of endometrial and myometrial layers was reduced in group II and group III but were not statistically significant compared to the control group. The number of endometrial glands was significantly decreased in group II compared to group I. **Conclusion:** In conclusion, Tualang honey could be pointed as a possible protective antioxidant agent to help prevent deleterious effects of BPA on prepubertal rat uterus.

EP119

Effective concentration 50 (EC50) of sodium hypochlorite on *Daphnia magna* (water flea)

Nabilah Izham, Izham Bakar, Karimah Mohamad, Syafikah Adua Bakri, Norul Badriah Hassan

Background: Despite the known toxicity of sodium hypochlorite to aquatic organisms and invertebrates, it is commonly used as a household bleaching agent. Information on acute toxicity and level of hazards are not available. **Purpose:** This study is aimed to determine the EC₅₀ of the commercial household sodium hypochlorite on *Daphnia magna* (water flea) and to categorize its toxicity level. **Methods:** Range finding test was conducted to determine appropriate concentration for definitive test. Immobility and behavioral changes of daphnids for 48 hours exposure time were observed. Mean value for EC₅₀ value with 95% confidence limit was calculated. Toxicity level was then categorized according to the European Globally Harmonized System of Classification and Labelling of Chemicals (GHS). **Result:** At the concentration of 5.0 and 3.3 ppm, all daphnids were affected and immobilized. At concentration 2.2 ppm and below, the daphnids showed abnormal behavior. The actual EC₅₀ is achieved 0.14 ppm test solution which was categorized as aquatic hazard category acute 1 indicating very toxic to aquatic life and environment. **Conclusion:** This study showed that the household sodium hypochlorite was very toxic and hazardous to environment. Proper clothing and thorough washing should be strictly implemented in handling this bleaching agent.

EP120

Recurrent gluteal abscess: a case of a mild immunodeficiency in a young woman

Fawwaz Shakir Al Joudi, Suhair Abbas Ahmed, Nurul Khaiza Yahya, Jason Friedman Cabot, Gurdeep Perakash Singh

A 21-year-old girl presented with recurrent abscesses in the gluteal region with a positive family history of similar abscesses on the paternal side. The patient underwent incision and drainage of an abscess on one occasion, but the abscesses recurred starting three months later. Non methicillin resistant *Staphylococcus aureus* (NMRSA) was isolated. Blood counts were generally normal with the haemoglobin and RBC counts marginally low. Investigations revealed no increases in the neutrophil and lymphocyte counts during the periods of abscess formation. The neutrophil: lymphocyte counts ratios (NLCR) remained within reference ranges and did not rise to levels seen in infection. Chemiluminescence was marginally normal as were the T-lymphocyte sub-sets with a CD4+: CD8+ ratio of 0.83, although they were on the low side during an on-going abscess episode. Immunoglobulin levels were within reference ranges. It is speculated that there may be a deficient CD4+ stimulation associated with weakly responsive neutrophils that lead to weak responses to infections, and these may be associated with low levels of cytokines and growth factors.

EP121

Optimal concentration of vascular endothelial growth factor (VEGF) in inducing its-regulated gene expression in rat aortic endothelial cell line

Hamid H. Enezei, Khamis MF, Rahman RA, Abdul Razak NH, Mutum SS, Samsudin A. R, Azlina A

INTRODUCTION: Vascular endothelial growth factor (VEGF) is an essential protein involves in regulating endothelial cell (EC) differentiation and proliferation. In order to study the VEGF gene regulation in EC *in vitro*, an ideal concentration of the growth factor needs to be established. **OBJECTIVE:** To determine the optimal concentration of VEGF which induce the expression level of VEGF-regulated gene in rat aortic EC. **METHODS:** Rat aortic EC were cultured in the endothelial-cell growth medium in accordance to the manufacturer's recommendations. The cells were treated with three different concentrations (5ng, 10ng and 15ng/ ml) of Recombinant Human VEGF (GIBCO, USA) at three different time intervals (3 days, 7 days and 10 days). After harvesting, the cells were subjected for RNA isolation using RNA extraction kit (*analytikjena*, Germany). This was followed with performing reverse transcriptase-PCR (RT-PCR) using One Step RT-PCR kit (Qiagen, Germany) to amplify the VEGF-regulated gene. The RT-PCR products were then electrophoresed, and image of the gel was captured. The intensity of the PCR bands was calculated and analyzed. **RESULTS:** Results showed that EC treated with 15ng/ml was consistently expressed a higher level of VEGF-regulated gene comparing to the other concentrations regardless the day of treatment. **CONCLUSION:** Findings of this study implied that VEGF of 15ng/ml was the best possible concentration to be used in inducing its-regulated gene expression in rat aortic EC *in vitro*.

EP122

Haematological profiles in dengue viral infected patient in HRPZ11

Nor Azah Farhah AA, Shafini MY, Ilunihayati I, Majdan R, Nurehan M, Noor Haslina MN, Anwar A

INTRODUCTION: Dengue is described as endemic in Malaysia. The disease warrant early diagnosis for effective treatment to prevent mortality. Early clinical features of dengue infection are variable among patients, and initial symptoms are often non-specific. Therefore, specific laboratory tests are necessary for an accurate diagnosis. **OBJECTIVE:** To study haematological parameters for early marker of dengue detection in dengue viral infected patient. **METHODS:** This is a retrospective study of 294 patients recruited from January till December 2012. Full blood count results of all patients whom were confirmed diagnosis of dengue fever (established by detection of dengue virus specific IgM) were collected and reviewed. SPSS Software Version 18 was used for the statistical calculation. **RESULTS:** A total of 294 dengue fever cases were studied. 227 patients (77.2%) had thrombocytopaenia and 67 patients (22.8%) had normal platelets count. 158 patients (53.7%) had leucopaenia and 136 (46.3%) patients had normal total white count. Other findings revealed that 105 patients (35.7%) had raised haematocrit level, 182 (61.9%) patients had lymphocytosis and 264 patients (89.8%) had normal haemoglobin level. **CONCLUSION:** Majority of the patients have thrombocytopenia, leucopenia, lymphocytosis with normal haemoglobin level. However these findings may not always be present in all patients. Hence, other haematological parameters need to be work out to improve the detection of dengue fever.

EP123

Identical chromosome translocation inherited in an infant born to a mother with balanced translocation t(9;15)(p21;q23)

Nik Mohd Zulfikri MZ, Siti Mariam I, Norhidayah R, Nurul Alia MN, Nazihah MY, Hashima H, Ruzi Hamimi R, Azrahayu A, Iluni Hayati I, Ravindran Ankathil

Introduction: Balanced chromosome translocation is a condition in which the correct number of chromosomes are present, but segments of 2 chromosomes have exchanged locations. Carriers of balanced translocation are usually phenotypically normal and healthy. But their offsprings may be at an increased risk for birth defects. This report describes a family with an inherited balanced translocation between chromosomes No: 9 and No: 15. **Family report:** Blood sample of a 1 month old Malay baby boy, with history of persistent hypocalcaemia since birth, respiratory distress and hypospadias was received for karyotyping, to rule out DiGeorge syndrome. Karyotype analysis performed on 35 GTG banded metaphases as well as FISH analysis confirmed 46, XY, t(9;15) (p21;q23) karyotype pattern. FISH analysis indicated no deletion in DGCR on chromosome 22, thus ruling out DiGeorge syndrome. Karyotyping of phenotypically normal father (32 yrs) and mother (30 yrs) showed normal paternal karyotype, but maternal karyotype was 46,XX, t(9;15) (p21;q23) which confirmed the carrier status of the mother from whom the child inherited the identical translocation. **Discussion:** Balanced autosomal translocations occur in about one in 500 newborn infants of which 2/3 are inherited. Unusual meiotic events in carriers of balanced translocations have important implications with respect to genetic risks for offsprings with congenital defects. The fact that offsprings of carrier parents with balanced chromosome translocations may still be at an increased risk of being malformed and/or developmentally delayed, because of submicroscopic chromosomal imbalances or altered position effect of genes, necessitates the need for appropriate genetic counseling in such families.

EP124

The effect of a single bout of sub-maximal exercise during Ramadan fasting on selected cognitive, physiological, and Psychological parameters among University students

Eman Ahmed A. Kaarud, Hairul Anuar Hashim, Soumendhra Saha

Introduction: The Ramadan is the fasting month in the Islamic calendar and many participants during the fasting months cease their exercise routine. Objectives: The effect of a single bout of sub-maximal during Ramadan fasting on selected psychological, physiological, and cognitive performances was examined. Method: Thirteen University students in Kelantan, healthy young males with the mean age of 23.54 (3.41) years, height 170 (7.02) cm, weight 66.95 (7.40) kg, and BMI 23.33 (1.74) kg.m². Physiological, psychological, and cognitive parameters were measured; Psychological measures collected were: mood states and rate of perceived exertion (RPE), Physiological measures collected were: heart rate (HR), blood lactate, blood glucose, and oxygen consumption (VO₂), Cognitive performance measures collected were: short term memory, and sustained attention. All participants performed the same prescribed experimental procedures, a week before Ramadan, in the 1st week, and 4th week of Ramadan, and 2 weeks after Ramadan. The easurements conducted at pre and post experimental trials consisted of the mood states, short-term memory, and sustained attention measures. The experimental trial consists of cycling at 45% VO_{2max}, followed by 60% VO_{2max}, and 75% VO_{2max} for 30 minutes. Furthermore, RPE, HR, blood lactate, blood glucose, and VO₂ were recorded at the end of each 10 minutes cycling. Results: The results of two-way repeated measure ANOVA revealed a significant ($P < 0.05$) interaction between trials across time for body mass index (BMI), sustained attention (DVT₂), and blood glucose. Conclusion: The exercise during Ramadan fasting has positive effects on cognitive and physiological performances, but not in psychological performances.

EP125

Immunomodulatory properties of Tualang honey (*Koompassia excelsa*) in Balb/C mice

Tan Tiong Kit, Johnathan Malagobadan, Siti Shazwani Muhamad Sayuti, Jamaruddin Mat Asan and Nurul Asma Abdullah

Introduction: Local natural product extracts has been gaining great focus from research and therapeutic aspect. Similarly, the outcome of studies on one of nation's renowned Tualang honey (*Koompassia excelsa*) has profoundly anchored its broad aptitude in anti-inflammatory, antioxidant and antimicrobial properties. **Objective:** To study the immunomodulatory properties of Tualang honey (TH) in Balb/C. **Methods:** TH was orally administrated daily for 14 days to Balb/C male mice (5/group) in dose ranging from 10mg, 30mg and 60mg. Pre-treatment and post-treatment body weights were measured. Upon sacrificing, the spleen was weight and then homogenized. The splenocytes were stained with various surface markers antibodies namely CD3⁺CD4⁺, CD3⁺CD8⁺, CD14⁺ and CD19⁺. **Results:** Balb/c mice immunized with Tualang honey showed increased populations of CD3/CD4, CD3/CD8, CD14 and CD19 when comparison made to untreated group. Interestingly, populations of CD3/CD4, CD3/CD8 and CD19 in mice treated with Tualang honey increased in dose dependent manner. Proliferation analysis of splenocytes obtained from Tualang honey-treated mice also showed an increment in dose dependent manner. In addition, the spleen weight of mice treated with Tualang honey has also increased according to the dosage given. **Conclusion:** The results reveal the immunostimulant effects of TH in mice by enhancing lymphocyte populations especially T helper (CD3⁺CD4⁺), cytotoxic (CD3⁺CD8⁺) and monocyte (CD14⁺) cells.

EP126

Double t(8;21) translocation and near tetraploidy clones in a patient with Acute Myeloid Leukemia-M2

Norhidayah R, Siti Mariam I, Nurul Alia MN, Nik Mohd Zulfikri MZ, Nazihah MY, Hashima H, Ruzi Hamimi R, Rosline H, Iluni Hayati I, Ravindran Ankathil

Introduction: Leukemias are often characterized by balanced translocations between chromosomes. In Acute myeloid leukemia, few subtypes are associated with consistent, balanced chromosome translocations. The t(8;21) balanced translocation with M2 and (rarely M4) subtype of Acute myeloid is associated with good prognosis. This translocation which results in gene fusion between AML on chromosome 21 and ETO on chromosome 8, produce AML1 –ETO protein, probably a chimeric transcription factor which contributes to myeloid leukemogenesis. Here we report one AML M2 case with double t(8;21) translocation at initial diagnosis. **Case Report:** A 19 year old Malay lady presented with bleeding tendencies (easily bruising over limbs and recurrent gum bleeding) and fatiguability. Peripheral blood analysis showed bicytopenia and leukocytosis with presence of blasts more than 90%. Initial chromosome analysis showed 47,XX,t(8;21)(q22;q22), t(8;21)(q22;q22) karyotype pattern and FISH analysis confirmed AML1/ETO fusion signals. Further cytogenetic follow up, 3 months after initiation of treatment, revealed a mixture of normal and abnormal near tetraploid metaphases with 90-100 chromosome range. **Conclusion:** Presence of double t(8;21) translocation is a rare finding in AML. Elimination of t(8;21) and emergence of near tetraploid clone during the course of treatment suggest the consequence of a new clonal evolution. The patient is being followed up to determine whether double t(8;21) and near tetraploid clone are associated with good or poor prognosis in AML M2 patients.

EP127

Manipulation of Ras and Akt Oncogenic Pathways Induces Tumor Formation in Rabbit Brain

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Introduction: Translation of promising experimental therapies from rodent models to clinical success has been complicated as the novel therapies often fail in clinical trials. Existing rodent glioma models generally do not allow preclinical evaluation of the efficiency of novel therapies in combination with surgical resection. **Objectives:** In this study, we aimed to establish a larger animal model utilizing lentivirus vector mediated oncogenic transformation in rabbit brain. **Methodology:** Lentiviruses carrying constitutively active AKT and H-Ras oncogenes, and p53 siRNA were introduced into newborn rabbit neural stem cells (NSCs) and intracranially implanted into rabbits' brain to initiate tumor formation. MRI scanning was performed every week or two weeks for monitoring growth of the tumor. **Results:** Tumor was detected 48 days after the implantation of transduced NSCs. Histological features of the tumor mimic closely grade II ganglioglioma. Immunostainings demonstrated positivity for AKT and H-Ras. Strong expression of GFAP and Ki-67 was also detected. Additionally, p53 expression was very low in the tumor area. Microvascular proliferation was found by the detection of CD31 positive endothelial cells in the tumor area. **Discussion:** The implantation of AKT, H-Ras and p53 siRNA transduced NSCs for tumor induction resulted in ganglioglioma formation. In spite of the low frequency of tumor formation, this method can be used for the generation of resectable brain tumors in rabbits.

Effect Of Propolis On Amelioration Of Oxidative Stress In Kainic Acid Mediated Excitotoxicity In Different Regions Of Rat Brain

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Introduction: Honey bee propolis has been proposed to be protective on neurodegenerative disorders. To understand the neuroprotective effects of propolis, NO levels, thiobarbituric acid reactive substances (TBARS) and total antioxidant status (TAS) were studied in cerebral cortex (CC), cerebellum (CB) and brain stem (BS) of rats supplemented with propolis and treated with kainic acid. **Methodology:** Male *Sprague-Dawley* rats were divided in to one control group (1) and three study groups; KA group (2), Propolis group (3) and Propolis plus KA group (4). Group 3 and 4 were orally administered with propolis (150mg/kg body weight), five times every 12 hours. Group 1 and 2 received vehicle and saline. Group 2 and 4 were given subcutaneous injection of kainic acid (15mg/kg body weight) and were sacrificed after 2 hrs and CC, CB and BS were separated homogenized and used for estimation of NOx, TBARS, and TAS by colorimetric methods. Results were analyzed by one-way ANOVA and reported as mean \pm SD from 6 animals and $p < 0.05$ considered statistically significant. **Results:** NO was decreased significantly ($p < 0.001$) in the HP+KA treated group compared to KA treated group. TBARS was decreased and TAS was increased significantly ($p < 0.001$) in HP+ KA treated group compared KA treated group. **Conclusions:** Results of this study clearly demonstrated that the propolis treatment brought the restoration of NO levels and decreased oxidative stress in kainic acid mediated excitotoxicity. Hence the propolis can be a possible potential candidate of protective agent against excitotoxicity and neurodegenerative disorders.

EP129

Comparison Of Kap On Dengue Fever Between Combi Areas In Kelantan

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INTRODUCTION: COMBI (Communication for Behavioral Impact) program is a community-based dengue program to prevent and control dengue fever. COMBI is defined as a social mobilization process directed to mobilize individuals and their families towards an appropriate action against dengue. **OBEJCTIVE:** To compare KAP on dengue fever between two COMBI areas, which COMBI programs were conducted in different times, in Kelantan. **METHODOLOGY:** From March to April 2012, a cross-sectional study was conducted in Kampung Nelayan Kandis, Bachok and Kampung Batang Merbau, Tanah Merah. COMBI programs were conducted in Kampung Nelayan Kandis and Kampung Batang Merbau in 2006 and 2008, respectively by Ministry of Health Malaysia. Structured KAP questionnaire was administered to 140 respondents, which were selected by using stratified multistage sampling technique. Each answer was given a point and the points for each section were totaled. Total KAP score was assessed as good, fair or poor based on Bloom's cut-off point. Data were entered and analyzed using SPSS Statistics 19. **RESULTS:** The mean score for knowledge and attitude were higher in Kampung Batang Merbau. However, the differences between mean score were not significant. For total score of KAP, 37.1% were classified as good in Kampung Batang Merbau compared to 25.7% in Kampung Nelayan Kandis. On the effect of socio-demographic characteristics on KAP, only education level was significant in Kampung Batang Merbau ($p=0.012$) and Kampung Nelayan Kandis ($p=0.016$). **CONCLUSIONS:** More residents of Kampung Batang Merbau were knowledgeable and had positive attitude towards dengue fever control measures compared to resident of Kampung Nelayan Kandis. Other indicators have to be considered in full evaluation of the sustainability of COMBI programs.

EP130

Medicinal Mushroom of *Cordyceps sinensis* : Non-toxicological Low Level of Heavy Metals

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Medicinal plants that have been employed for such a long centuries as remedies for human disease does not guarantee their safety and may produce toxic effects. *Cordyceps sinensis* (CS), an exotic medicinal fungus has been regarded as a medicinal mushroom throughout history to treat various diseases that regard to respiration, pulmonary, renal, liver, cardiovascular, diabetes and in the treatment of immune disorders. Evaluation of cytotoxicity and level of heavy metals of CS have never been performed. The objectives of the study were to determine cytotoxic activity and to analyse the level of heavy metals content in CS. Water extract of CS was examined for cytotoxicity activity against Vero cell (Kidney epithelial cell) and Human Bladder Smooth Muscle Cell (BdSMC). The sample was subjected to microwave-assisted digestion with HNO₃, HCl and H₂O₂ for heavy metals analysis using atomic absorption spectrometer (AAS). CS water extract showed none cytotoxic activity against Vero and HBdSMC at different concentration. The maximum concentration of Cu, Zn, Cd, Fe, Pb and Ni were 0.217, 0.339, 0.041, 2.541, 1.648 and 0.527 ppm, respectively. All of these heavy metal analysed were found out to be below the standard of permissible level. The findings generally suggest that CS extract probably safe for human consumption as health supplement and treatment of those diseases mentioned above. Further studies should be carried out to determine the safety of CS extract using animal study.

EP131

A Simplified Isolation Method for Epithelial Stem Cells and Its Use for Fabrication of the Chitosan Based Skin Substitute

Mohd Hilmi Abu Bakar, Ahmad Sukari Halim, Asma Hassan

There are challenges among scientist as hair follicle stem cells (HFSCs) derived from a human hair follicle remain poorly expanded in culture medium and still requires a coating agent for proliferation in culture vessels. In the present study, the isolation, characterization and differentiation of HFSCs for chitosan based skin substitute application were performed. Scalp, 1cm by 1cm was collected from patients for neurosurgery or wound suturing procedure. Viability of HFSCs in defined keratinocytes serum free medium (KSFM) in coated plates and CnT07 medium in non-coated plates were compared. Differentiation of HFSCs into epidermis was carried out using CnT02-3D medium with confirmation by mouse monoclonal antibodies against human cytokeratin 6 and human involucrin. Co-culture between fibroblasts and HFSCs into chitosan were established at a density of $3 \times 10^6/\text{cm}^2$ and $1 \times 10^6/\text{cm}^2$ respectively. After 10 days of culture, the HFSCs became confluent and applicable for skin substitute application. Viability analyses using presto blue showed that the HFSCs culture in CnT07 with uncoated plates were significantly higher than HFSCs culture in KSFM with coated plates ($P < .05$). Molecular characterization of HFSCs *via* flow cytometry analysis demonstrated that the percentage of HFSCs expressing CD200 and K15 were 65.20 ± 3.16 and 72.07 ± 6.62 respectively. The population doubling time of HFSCs was 21.48 ± 0.44 hours in CnT07-uncoated plates and 30.73 ± 0.75 hours in KSFM-coated plates. After three weeks, chitosan based skin substitute was harvested for treating impaired wound healing in animal model. This method is a simple technique for HFSCs isolation and raises hope for the *de novo* skin or epidermal substitute preparation.

EP132

Effect of an iso-intense continuous and intermittent training programme on O₂ max and anthropometric profile of sedentary males

Asok Kumar Ghosh, Nur-Hasanah Ruslan

The purpose of this study was to investigate the effectiveness of an iso-intense continuous and intermittent training program on maximum aerobic capacity ($\dot{V}O_2$ max) and other anthropometric profiles, like, body mass index (BMI) and fat mass of sedentary males. 24 healthy sedentary males of 21.8 ± 3.7 years participated in this study. They were divided into 3 groups, like, control group (n=9), continuous training group (n=7) and intermittent training group (n=8). The study was approved by ethical committee of the Universiti Sains Malaysia, Kubang Kerian, Kelantan. $\dot{V}O_2$ max of each individual was determined following a graded exercise protocol to exhaustion, on an Excalibur Lode Cycle ergometer. For continuous exercise, subjects cycled at 60% of individual $\dot{V}O_2$ max for 45 minute on an ergometer. In intermittent training, the subjects cycled at 45% of individual $\dot{V}O_2$ max for 10 min followed by 5 min rest and then at 75% of individual $\dot{V}O_2$ max for 10 min followed by 5 min rest. This repetition continued until 45 min. Both the training programme were made iso-intense. The relative $\dot{V}O_{2max}$ of both the continuous and intermittent training groups improved significantly, but the degree of improvement was more in intermittent training programme. No improvement was observed in BMI. Regular physical activity is a part of healthy lifestyle that is known to reduce risk of cardiovascular disease. Hence, in conclusion, our study indicated a beneficial effect of exercise training in improving the cardiorespiratory fitness ($\dot{V}O_2$ max), through continuous and intermittent training programme

EP133

Effect of *Gynura procumbens* aqueous extracts on fertility of male diabetic induced rats

Mahanem Mat Noor, Pusparanee Hakim & Halimah Abdullah Sani

Infertility is one of the complications arising from diabetes mellitus. This study aims to investigate the antidiabetic and pro-fertility effects of *G. procumbens* (GP) leaves aqueous extract on sperm quality, testicular antioxidant enzymes activity as well as plasma testosterone level in diabetic rats. Diabetes was induced in male Sprague dawley rats via intravenous injection of streptozotocin (55 mg/kg of body weight). Resulting diabetic-induced rats were divided into three groups, which were given; 50, 100 and 150 mg/kg GP extracts respectively by oral gavage. Positive control groups were given metformin and glibenclamide at 500 mg/kg and 5 mg/kg respectively. Negative control group was administered distilled water. Results show GP extracts significantly ($p < 0.05$) increased sperm count and decreased sperm mortality in diabetic rat. Additionally GP aqueous extract treatment at 50, 100 and 150 mg/kg doses yielded significant ($p < 0.05$) 31.33%, 26.84% and 42.41% increments respectively in testicular glutathione peroxidase specific activity. Superoxide dismutase and testicular catalase specific activity also increased significantly ($p < 0.05$) with administration of GP extracts. GP treatments also increased plasma testosterone levels in diabetic rats significantly ($p < 0.05$). Phytochemical analysis demonstrated that GP extract possesses high antioxidant and radical-scavenging capacities. In conclusion, consumption of GP leaves aqueous extracts is capable in ameliorating sperm quality and alleviating testicular oxidative stress in diabetic rats by elevating antioxidant enzymes activities and improving plasma testosterone levels.

EP134

***P.sacharosa* and *P.granatum* crude extracts induce Apoptosis and cause DNA damage in human acute myeloid (MV4-11) and human chronic myeloid (K562) leukemia cells**

Siti Asmaa M Jusoh, Hamid Al-Jamal, Azman Seeni & Muhammad Farid Johan

Introduction: 'Better, Safer and On Target' are the recent trends in cancer chemotherapy. Over last decade, plant research has been the greatest concerns as it endowed high antioxidant property that possess health-promoting properties. The ingestion of natural antioxidant has been associated with reduced risk of cancer. *FLT3-ITD* of acute myeloid leukemia (AML) and *BCR/ABL* translocation of chronic myeloid leukemia (CML) are the two common types of gene mutation associated with resistant to apoptosis and increased proliferation. **Methods:** In this study, we investigated the anti-proliferative effects of *Pereskia sacharosa* leaves extract (PSLE) and *Punica granatum* peels extract (PGPE) on two leukemic cell lines, MV4-11 (AML) and K562 (CML). Cell growth inhibition assay was performed to determine the IC_{50} , apoptosis and cell cycle analysis were studied by flow cytometry. Apoptosis and cell-cycle related regulatory proteins were investigated by immunoblotting. **Result:** Result showed that PSLE and PGPE promoted growth inhibition, induced apoptosis and promoted changes in cell cycle regulation. PSLE and PGPE increased expression of apoptotic proteins, such as caspases, bax and cytochrome c, and caused elevated p21 and its regulator protein, p53 in MV4-11 cell lines. Induction of p21 caused cell cycle arrest following DNA damage. Same patterns of expression was seen in PSLE treated K562 cells. However, there was a different pattern of apoptotic induction observed in PGPE treated K562 cell whereby the Akt protein was up-regulated in PGPE treated K562 cell, which indicated reduced apoptosis and increased cell survival. This result was in agreement with lower apoptosis induction observed in PGPE treated K562 compared with the other extracts. These results suggest that different cells response differently to different extracts. **Conclusion:** In conclusion, *P.sacharosa* leaves and *P.granatum* peel extract do have anti-cancer properties by caspase-dependent and p53-dependent pathways. Increased expression of Akt protein in K562 treated with PGPE was an indication of the involvement PI3/Akt pathway, a good candidature for therapeutic target that in CML.

EP135

Thymoquinone inhibits Intercellular Adhesion Molecule-1 and E-selectin protein expression in stimulated Human Coronary Artery Endothelial Cells

Mohtar E, Haron MH, Rahman T, Froemming G. R. A, Nawawi H

Background: Atherosclerosis is recognized as a chronic inflammatory disorder which involves a pro-inflammatory state in endothelial cells and endothelial activation, characterised by increased expression of adhesion molecules such as intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial-leukocyte adhesion molecule-1 (E-selectin). Thymoquinone (TQ), one of the bioactive compounds in *Nigella sativa* (black seed), has been postulated to have possible anti-atherosclerotic properties. However, its effects on expression of endothelial adhesion molecules are still poorly understood. **Objective:** To investigate the effects of TQ on ICAM-1 and E-selectin protein expression in stimulated endothelial cells. **Methods:** Human Coronary Artery Endothelial Cells (HCAECs) were stimulated with lipopolysaccharide (LPS) 1µg/ml for 24 hours whilst incubated with TQ at four different concentrations: 0.75, 1.5, 3 and 6µg/ml. Positive and negative controls were performed in parallel. sICAM-1 and E-selectin supernatant levels were measured by ELISA at 450nm. **Results:** Stimulated HCAECs incubated with TQ at 6µg/ml exhibited the lowest levels of sICAM-1 and E-selectin compared to controls (mean±SD: 9.7±0.6 vs. 26.4±0.2ng/ml, p<0.001 and 2.0±0 vs. 7.6±0.2ng/ml, p<0.001 respectively). sICAM-1 and E-selectin levels were also reduced with TQ at 3µg/ml compared to controls (23.2±0.1 vs. 26.4±0.2ng/ml, p<0.05 and 4.2±0.4 vs. 7.6±0.2ng/ml, p<0.01 respectively). There were no differences in sICAM-1 and E-selectin levels between TQ at 0.8 and 1.5µg/ml and controls. **Conclusion:** TQ reduces protein expression of pro-inflammatory biomarkers of endothelial activation in a dose-dependent manner. This suggests its atheroprotective properties which could have beneficial potential in the prevention of atherosclerosis and its related complications in high risk individuals.

Dimerization study of Polyhydroxyalkanoates Synthase from *Chromobacterium* sp.USM2

Lee Chu Xian, Hasni Arsad, Razip Samian

Polyhydroxyalkanoates (PHA) is a class of biodegradable polyesters produced naturally by wide range of bacteria during limited nutritional supplies to store carbon and energy. PHAs are biodegradable, biocompatible, thermoprocessable, and tailorable, PHAs and their composites are being increasingly used for biomedical applications. PHAs do not only able to improve cell proliferation and tissue regeneration, but also an excellent blood-compatible material. PHA synthase is the main enzyme involved in the production of PHAs. PHA synthase uses coenzyme A (CoA) thioesters of hydroxyalkanoic acids (HAs) as the main substrates and catalyzes the polymerization of HAs to yield PHAs with the concomitant release of CoA. The gene of the PHA synthase used in this study is derived from *Chromobacterium* sp. USM2, which is locally isolated from freshwater samples of Telaga Tujuh Waterfalls in Langkawi. This bacterium has nearly seven or eight-fold higher activity compare to common PHA-producing bacteria, and is able to produce homopolymer of poly(3-hydroxybutyrate) and copolymers of P(3HB-co-3HV), which posses better qualities and wider application. So far, there is no experimentally determined structural information on this 64kD PHA synthase. However, PhaC enzyme possesses α/β -hydrolase fold domain and lipase-box. Few studies proposed that purified PhaC exists in monomeric and dimeric forms. Highly conserved Tryptophan (W) of PhaC is proposed to generate hydrophobic surface for dimerization. Site-directed mutagenesis on that Tryptophan inactivated the enzyme and reduced PHA production. Due to the limited structural information, its functional properties including catalysis and dimerization are lacking. Therefore, this research seeks to investigate the structural properties as well as its dimerization mechanism by predicting the three-dimensional (3D) model of the PHA synthase from *Chromobacterium* sp. USM2 (PhaC_{CS}). Sequence analysis showed that PhaC_{CS} have very low similarity with all known structure on PDB, and highly variable N-terminal. Thus, normal structure modelling method is unable to provide a good structure for this protein. This research performs Multiple Templates Modelling based on different criteria to model the structure of PhaC_{CS}. At the same time, site-directed mutagenesis is performed to identify the crucial amino acid for dimerization.

EP137

Genetic associations of three polymorphisms of SLC2A9 with gout in Malay population

Mahfudzah Adanan, Nazihah Mohd Yunus, Wan Syamimee Wan Ghazali & Wan Rohani Wan Taib

Gout is the most common type of inflammatory arthritis due to high levels of uric acid and deposition of monosodium urate crystals present in joint and periarticular tissues. Several studies have confirmed genetic contribution in renal excretion of uric acid. The solute transporter 2A9 (*SLC2A9*) is demonstrated to be a renal urate transporter. The gene is expressed in the chondrocytes of human articular cartilage and peripheral leukocytes which are a key site for uric acid deposition which lead to gout development. The objective of the study was to test genetic associations of three common causal variants of this gene with gout in Malay population. Methodology: DNAs were extracted from 58 cases and 84 controls Malay populations with consented approval using a commercialized extraction kit. PCR-RFLP was performed for three causal variants of *SLC2A9* that are assigned as *rs5028843*, *rs11942223* and *rs3733591*. Single association and haplotype association were analyzed using online SHEsis software based on Hardy-Weinberg Equilibrium using Chi-square calculation with 95% confidence interval (CI) and P value of <0.05 is considered statistically significant. Result: Single association analysis of *rs11942223*, *rs3733591* and *rs5028843* with gout gave a value of P=0.13, OR=4.64; %95 CI=[0.523778~41.040024], P=0.02, OR=2.52; %95 CI=[1.118567~5.667296] and P=0.63, OR=0.51%95 CI=[0.161577~1.621810], respectively. Even though *rs11942223* did not showed association with the disease, the minor allele of the SNP conferred a trend towards susceptibility which is consistent with the minor allele of *rs3733591*. Therefore, a haplotype association of allele 1,2,1 from *rs11942223*, *rs3733591* and *rs5028843*, respectively showed a slightly significant (P=0.05) with gout in a protective manner (OR=0.20; 95% CI[0.034~1.129]). Discussion: This study revealed an association of *rs3733591* with gout development in Malay population justifying the role of *SLC2A9* as urate transporter in gout pathophysiology. Nevertheless, the major limitation might be due to the sample size which confer 76% of power.

Isolation and Characterization of Pepsin-Solubilized Collagen (PSC) Extracted from Body Wall of Sea Cucumber (*Bohadschia Bivittata*)

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Introduction: Sea cucumber is marine invertebrate. About 70% of the total body wall protein of sea cucumber was accounted for highly insoluble collagen fibers. A characteristic feature of the collagen fibrils is their banded structure consisting of three α_1 chains. **Objectives:** Aim of this study was to isolate and to characterize the pepsin-solubilized collagen (PSC) extracted from body wall of sea cucumber *Bohadschia Bivittata*. **Materials & Methods:** The body wall of *Bohadshia Bivittata* were cut into small pieces followed by washing using distilled water, and then replaced with 4 mM ethylenediaminetetraacetic acid (EDTA), 0.1 M Tris-HCl, pH 8.0, and stirred for 3 days to get precipitated crude collagen fibrils. Disaggregated insoluble crude collagen fibrils were treated with 0.1 M NaOH and 0.5 M acetic acid containing porcine pepsin to get PSC collagen. The ultrastructures were analyzed by using Scanning Electron Microscope (Quanta™, The Netherlands), at 5,000X to 100,000X magnification steps. **Results:** 65% of PSC collagen was successfully isolated from disaggregated crude collagen fibers. SEM analysis of crude collagen displayed a regularly repeated striated pattern, whereas, PSC displayed non-banded sheet-like fibers with twisted configuration. According to the electrophoretic pattern, PSC collagen was identified as type I collagen, consisting of three α_1 chains of approximately 138 kDa each. **Conclusion:** As high as 65% of PSC collagen was successfully isolated from *Bohadshia Bivittata* and classified as type I collagen. This finding shows the potential use of this collagen as an alternative to mammalian collagen used in the nutraceutical and pharmaceutical industries.

EP139

The Preliminary Evaluation of New Improved Formula of Locally Produced Dental Nanocomposites as Biomaterials

Noor Baizura Ab Ghani, Ismail Ab Rahman, Zabidah Ismail, Azlina Ahmad

Introduction: An important requirement for dental nanocomposites is biologic compatibility; the bonding usually remains in close contact with living dental tissues over a long period of time. A group of researchers from School of Dental Sciences, USM has produced new improved formula of locally produced dental nanocomposites and need to test for biocompatibility before commercialization. **Objective:** To evaluate the new improved formula of locally produced dental nanocomposites as biomaterials in terms of cytotoxicity by MTT assay assessment, using L929 mouse fibroblasts. **Methods:** Under aseptic conditions, each well of 96-well tissue plate was covered with L929 at a concentration of 5×10^4 cells/cm². Different concentrations of test materials were placed in the centre of each well plate. The cultures were incubated at 37°C and cell viability was determined by the MTT method at 24h, 48h and 72h after exposure. **Results:** New improved formula of locally produced dental nanocomposites exhibit cytocompatibility effect at all incubation periods (24h, 48h & 72h) that might allow to their use as biomaterials. **Conclusion:** Results have shown clearly the potential of new improved formula locally produced dental nanocomposites as biomaterials but further study test should be done. The MTT assay is a useful technique for the preliminary and rapid evaluation of the cytotoxicity of biomaterials.

EP140

Stature Estimation from Footprint (2D) Measurements in Chinese of Malaysia

Nataraja Moorthy T and Ang Yan Ling

Introduction: Stature estimation from measurement of various body parts is of particular interest to many anthropologists, anatomists and forensic scientists for its importance in medical-legal cases. Human footprints caused by feet are used for stature estimation. The human feet produce a two-dimensional footprint (2D) impression on hard surfaces. Stature can be estimated using 2D footprints. **Objective:** The present study attempts the stature estimation from various 2D footprint length measurements, viz. toe to heel lengths in Malaysian Chinese and to derive regression equations for forensic application. **Methods:** 400 bilateral footprints were collected using inkless footprint kit from 100 adult males and 100 females ranging in age from 18 to 55 years. Ethical approval was obtained from USM Ethics Committee (Human). Stature and toes-heel footprint lengths were measured. The data were analysed using PASW software to derive regression equations. **Result:** Ten linear regression equations were derived to estimate stature from 2D footprints separately for males, females and pooled sample. The correlation coefficients (r), standard error of estimate, R^2 and p value were calculated. The investigation shows a linear and close relationship between stature and 2D footprint lengths and statistically significant. The accuracy of the equations was verified by comparing the estimated stature with actual stature. **Conclusion:** It is concluded that regression equations for stature estimation using 2D foot prints for Malaysian Chinese were derived successfully for forensic application. The regression equations are population specific and are unsuitable for any other populations either in Malaysia or outside Malaysia.

EP141

Histopathology study on changes in traumatic injured rat spinal cord supplemented with *Spirulina platensis*

Izzuddin Aziz, Junedah Sanusi

Spinal cord injury (SCI) is a devastating disease that leads to permanent disability. The neurological dysfunction and paralysis that result is proportional to the severity of the trauma. This experimental study investigated the effects of *Spirulina platensis* on the cavity formation in traumatic injured rat spinal cord. Forty-two Sprague-Dawley (SD) rats were divided into three groups; Sham (laminectomy without SCI, $n=6$), Control (laminectomy with SCI, $n=18$) and Experimental (laminectomy with SCI + 180mg/kg/day *Spirulina platensis*, $n=18$). Laminectomy was performed at T10 and Inox No.2 modified forceps was used to make a partial crush injury on the spinal cord. The rats were then sacrificed on 3, 7 and 14 days post-injury. Longitudinal sections of the spinal cord were stained with Haematoxylin and Eosin (H&E) to visualize the morphological changes of the spinal cord. Cavity size was measured and analyzed by using one-way ANOVA. The results show that the cavity formed in the experimental group was significantly smaller ($p<0.05$) compared to those in the control group whereas no cavity formed in the sham group at 3, 7 and 14 days post-injury. In conclusion, the experimental results observed in this study suggest that treatment with *Spirulina platensis* possess potential benefits for traumatic SCI.

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