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This study is divided into two main parts. In the first part the effects of head injury namely those involved in motor vehicle accident and fall from heights are studied at both the macroscopic and microscopic levels. In Malta the number of deaths from such accidents is on the increase due to the high number of motor vehicles and increase in the incidence of death at places of work.

Immediately after death at the mortuary, the perilymphatic spaces of both inner ears are perfused via a transtympanic approach using buffered formaldehyde thus preventing autolysis. The temporal bones are removed from the cadaver the day after at autopsy. The whole temporal bone is preserved and X-rayed for gross pathology. Then it is microsliced using a special microslicer machine in 3 mm slices.

Each slice is again X-rayed for microfractures and digitally photographed through the dissecting microscope. Some slices are then decalcified, embedded in paraffin wax and again sectioned using a microtome followed by H & E staining.

From some other microslices, the basilar membrane is peeled off from the sectioned cochlear turns (namely the middle and basilar regions), embedded and sectioned again to be viewed under the light microscope.

In the second part of the study those individuals who sustained a head injury especially involving a fracture of the temporal bone/s but did not succumb are followed up from both the otolaryngological and audiological point of views. They are follow-up over several months having a full ENT examination and full audiological investigations namely pure tone audiometry, tympanometry and auditory brain stem responses. Any residual disability from the head injury namely those involving the middle ear and inner ear such as hearing loss, vertigo and tinnitus are noted.

In this study the correlation between the clinical signs and symptoms and the findings in the temporal bones are being investigated.

## O-035

## Imaging in acute stroke

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Stroke is a common cause for hospital admission. The causes of stroke and the dual diagnostic management scenarios is a topic for discussion in current medical practice.

Today there are conservative and more aggressive approaches to medical imaging management in Stroke. The conservative path includes: CT Scan, Doppler Sonography, eventually Magnetic Resonance(MR) Imaging and MRAngiography. In the more aggressive approach the initial line of investigation is MR followed by Carotid Doppler Sonography.

MRI brain, Diffusion weighted Imaging and MRA of circle of Willis detect early cerebral infarction and confirm cerebral artery occlusion if present. Contrast enhanced MRA together with Doppler Sonography of the Internal Carotid arteries are often enough to diagnose if Stenosis is > 70 % thereby directing towards endarterectomy. Thrombolytic therapy with selective cerebral artery catheterization is also currently undertaken (not locally) if intracranial acute thrombosis is diagnosed particularly in the strategically placed Middle Cerebral Artery territory, which is the area of most morbidity in survivors(in view of the sensorimotor cortex). The development and diagnosis of cytotoxic oedema, its distinction from vasogenic oedema and the progression to infarction will be outlined. Differential depiction of the responsible pathological factors(atheroma, arterial occlusion, infarction, haemorrhage, aneurysm, AVM and venous thrombosis) utilising various radiological modalities will be elaborated.

The conservative diagnostic management approach is the most useful and more readily practiced regimen(locally). The more aggressive approach is extremely costly, more demanding and will need further investment particularly in more dedicated equipment, more human resourses and more after-hours organisation for it to be properly utilised locally, in future.

## O-036

## Cardiovascular risk factors in Maltese patients with newly diagnosed Type 2 Diabetes presenting to the Diabetes Clinic at St Luke's Hospital in 2003, Malta

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**Methods:** A representative sample of newly diagnosed Type 2 diabetes was studied retrospectively. All patients in the above category (N:110) attending the diabetes clinic on three specific days of the week were studied. Glycaemic status, blood lipid levels, blood pressure, creatinine levels and smoking status were assessed.

**Results**: During the study period, 93.6% of patients had their blood pressure measured, with 39% and 58.2% of the patients having a level of more than the recommended targets of 140 systolic and 85 diastolic blood pressures, respectively.

62.7% of the study population were tested for HbA1c values with the mean HbA1c value for the entire study population being 7.69%.

66.4% of the study population were tested for lipid values. Overall, 54% had total cholesterol levels of 4.8 mmol/l or more, 52.7% had LDL cholesterol levels of 3 mmol/L or more and 37.2% had triglyderide levels of 3mmol/l or more; these were classified as at increased risk of cardiovascular disease. 19.1% of patients were smokers.

**Conclusion**: This study showed that the number of patients tested for HbA1C and lipid values needs to be increased and that a high proportion of patients with newly diagnosed Type 2 diabetes have risk factors for diabetes-related complications. Good disease management of diabetes requires attention to a multiplicity of factors if guideline targets are to be met and long term complications avoided.

## O-037

## From Nature to Nurture: Genetics as a tool to understanding predisposition to Diabetes

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A major focus of current interest in genetics lies in the genetic variation underlying susceptibility to common human disease such as ischemic heart disease, diabetes and malignancy. Such diseases arise from a complex interaction between genetic background and the environment. In contrast to single-gene or Mendelian disorders, susceptibility genes in common diseases are likely to be multiple, each with little individual effect but contributing in a quantitative fashion to expression or otherwise of a trait. Furthermore, the variants in such genes associated with disease-predisposition are often common in a given population because of prior selective advantage. This model of genetic predisposition to common disease differs markedly from that in Mendelian disorders where inheritance of a single genetic trait markedly affects phenotype. Current linkage and association strategies for the mapping of quantitative genetic traits in type 1 and type 2 diabetes will be reviewed together with genetic variants known to be associated with diabetes and our recent contributions to understanding the genetic predisposition to type 1 diabetes.

## O-038

## Prevalence between clinical and subclinical hypothyroidism and outcomes in patients with myocardial infarction