ASiT Medal 0134 A PREDICTION MODEL FOR COLORECTAL CANCER BASED ON THE TWO WEEK WAITE REFERRAL PROTOCOL
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Introduction: The aim of this study was to look at symptom combinations within the current Two Week Waite (TWW) referral protocol and create a modelling system which would determine which patients in our population are at greatest risk.

Methods: Over an eight year period data from 1,376 TWW referrals for colorectal cancer at a district general hospital was collected. The data was also used to develop a model, which looked at symptom combinations and was able to highlight which patients are most likely to have a diagnosis of cancer.

Results: Multivariate logistic regression analysis identified the following as being significant to predict a diagnosis of colorectal cancer in the population referred as 2-WWVs (in order of significance): a haemoglobin of less than 10g/dl, daily rectal bleeding, abdominal pain, loss of weight and male gender. This data was used to produce a nomenclr for predicting cancer in TWW referrals.

Conclusions: This study has suggested a comprehensive predictive model to allow local GPs to more easily identify appropriate routes of referral. This model could be used in the future as a basis for “straight to test” protocols to further enhance the speed of diagnosis in patients with colorectal cancer.

ASiT Medal 0521 SEGMENTAL AORTIC STIFFNESS MEASURED BY MRI IN PATIENTS WITH ABDOMINAL AORTIC ANEURYSM (AAA)
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Background: Arterial stiffness is an independent predictor of cardiovascular risk and mortality. Stiffness has previously been assessed as carotid-femoral pulse wave velocity (cfPWV) using tonometry and is considered a gold standard. Phase contrast cardiovascular magnetic resonance imaging (CMR) measures PWV along aortic segments; these may reflect local changes that precede aneurysm formation. Our objective was to assess PWV in presence of small AAA.

Methods: cfPWV was measured in 37 AAA patients and 43 matched control subjects using SphygmoCor. CT was used for aortic calcium scoring to analyse correlation with PWV. CMR was performed in 40 subjects to measure segmental PWV.

Results: Median AAA diameter was 3.65cm (3.0-5.5cm);cfPWV was significantly higher in subjects with AAA (mean 13.20 ± 0.4m/s) vs controls (10.94 ± 0.3 m/s; P=0.0001). CMR showed significantly greater PWV in abdominal segment vs thoracic segment in both AAA (P=0.0099) and controls (P=0.0002). Aortic calcium scoring in controls was in significant correlation with CMR-PWV (r=0.77, P=0.01) but not in AAA group (r=−0.27, P=0.5).

Conclusion: This is the first study of cfPWV and CMR-PWV in small AAA showing increased arterial stiffness in AAA patients. We hypothesise therefore, that AAA formation is an adaptive remodelling response to hypertension and increased arterial stiffness.

ASiT Medal 0825 AN EXPERIMENTAL STUDY COMPARING COLLATERAL TISSUE DESTRUCTION WITH THE HARMONIC SCALPEL VS THE COBLATOR WAND – HOW DOES THIS AFFECT TUMOUR RESECTION MARGINS?
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Background: Within oncological surgery, excision margin adequacy is key in MDT decisions regarding adjuvant therapy. Technological innovation has led to such dissectors as the Harmonic scalpel and Coblator wand providing dissection with improved haemostasis. However, little is known about collateral tissue destruction caused by these techniques and how this impacts upon assessment of tumour resection margins. This study uses an animal model to quantify the collateral tissue destruction caused by the Harmonic scalpel vs Coblator wand vs cold steel dissection.

Methods: Incisions through cow tongue were made with each dissector. The residual tissue width was measured with vernier calipers and subtracted from the width of original tissue.

Results: The mean width of collateral tissue destruction for each modality was as follows:– Harmonic cutting 3.6mm, Harmonic coagulating 4.1mm, Coblation cutting 3.5mm, Harmonic cutting under tension 1.2mm.

Conclusions: This study demonstrates that the tissue destruction using the Harmonic scalpel and Coblator wand is significant when compared to cold steel dissection. These results impact upon MDT decisions due to difficulty in the interpretation of close excision margins. The findings of this study should be borne in mind when using the Harmonic scalpel and Coblator in oncological surgery.

SARS Academic and Research Prize 0912 THE TREATMENT OF GLUE EAR USING BIODEGRADABLE POLYMERS TO DELIVER HIGH DOSE ANTIBIOTICS AND MUCOLYTICS TO INFECTION SITE
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Aims: Recent evidence that otitis media with effusion (OME) is the result of a biofilm infection may explain the high rate of recurrence after conventional treatment with grommets. We aimed to test the in-vitro efficacy of antibiotics (Clindamycin and Rifampicin) and mucolytics (N-acetylcysteine) in eradicating middle ear biofilms using a biodegradable polymer that can be delivered locally.

Methods: Staphylococcus aureus biofilms of an OME origin were grown on silicone discs. Biofilms were exposed to various combinations of N-acetylcysteine, Rifampicin and Clindamycin for different time periods. Antibiotic concentrations of 100 and 1000 times above the minimum inhibitory concentration (MIC; minimum concentration needed to inhibit bacteria in free planktonic state) were used. 5 times the MIC of N-acetylcysteine was used.

Results: Combination therapy of N-acetylcysteine with 1000MIC of Clindamycin + Rifampicin eradicated biofilms in 24 hours. Biofilms were eradicated in 7 days using N-acetylcysteine alone. Biofilms were eradicated in 3 weeks using antibiotics alone at 1000MIC.

Conclusion: Combination therapy of N-acetylcysteine with antibiotics seems to be effective in eradicating biofilms. Delivering combination therapy directly into the middle ear using controlled-release biodegradable polymers is now being explored as a potential novel strategy to combat OME.

SARS Academic and Research Prize 0186 ETHNIC DIFFERENCES IN CIRCULATING MARKERS OF ANGIOGENESIS AND THEIR ASSOCIATION WITH CARDIOVASCULAR RISK FACTORS AND PERIPHERAL ARTERIAL DISEASE
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Objective: To determine whether ethnic differences exist in circulating markers of angiogenesis between South Asians, Blacks and Whites. To determine associations between these markers, cardiovascular risk factors and Peripheral arterial disease (PAD).

Patients and Methods: We recruited 255 subjects (86 South Asians, 81 Blacks and 79 Whites) between October 2008 and September 2009 attending Sandwell & West Birmingham Hospitals NHS Trust. Subjects were separated into radiologically confirmed symptomatic PAD, risk factor controls (At least 1 cardiovascular risk factor& Ankle Brachial Pressure Index (ABPI)<1) and healthy volunteers (No cardiovascular risk factors& ABPI>1). All subjects completed a questionnaire, anthropometric measurements and plethysmography were undertaken. Enzyme linked immunoassay (ELISA) was used to quantify angiogenic markers.

Results: Whites had lower angiogenin concentration than both South Asians and Blacks (p=0.0217 and p=0.003 respectively). Angiogenin was higher in diabetics than non-diabetics (p=0.0338). Ang-1 and Ang-2 were correlated with Age (p=0.007 and p=0.006 respectively). Ang-2 was higher in coronary artery disease (p=0.0176) and PAD (p=0.0018). The association between Ang-2 and PAD was apparent in both South Asians (p=0.0084) and Whites (p=0.0484).

Conclusions: Ethnic differences in angiogenic markers are evident. This may reflect susceptibility of particular groups to PAD. Of the angiogenic markers, Ang-2 was higher in symptomatic PAD; its levels increasing with advancing disease.

SARS Academic and Research Prize 0275 CONTRAST ENHANCED AORTIC DUPLEX ULTRASONOGRAPHY SCANNING (CEADUSS) – A LABORATORY MODEL PHANTOM TO COMPARE AND DETERMINE THE LIMITATIONS OF ENHANCED AND UNENHANCED ULTRASONOGRAPHY SCANNING FOR POST-OPERATIVE SURVEILLANCE OF ENDOVASCULAR ABDOMINAL AORTICANEURYSM REPAIR (EVAR)

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Objectives: To detect the subgroup of patients whom may require post-EVAR intervention, currently all patients undergoing endovascular treat- ments enter a programme of surveillance, usually with regular CT scan follow-up. We propose ultrasound may be suitable non-invasive follow-up investi- gation and we aimed to determine the absolute limitations of ultrasound in detecting low flow endoleaks and compare the effects of the addition of microbubble contrast enhancement.

Methods: We constructed an EVAR-simulation-phantom with endoleak represented by a smaller lumen with variable flow alongside the fixed stent. Distances between the two vessels was varied by viewing from set stent positions and flows were viewed from anterior, posterior or lateral. Subjects consisted of ultrasonographers, who examining the phantoms geometric parameters with colour doppler then repeated using CEADUSS.

Results: Anterior endoleaks were detected more frequently than lateral then posterior positioned leaks were the most difficult to detect. The addition of contrast improved anterior leak detection from 76.4% to 98.6% (P<0.001) and also lateral endoleaks from 59.7% to 77.8% (P<0.005). However, posterior endoleak detection was not significantly improved (62.5% to 61.1%).

Conclusion: We have demonstrated that endoleak certainty is improved significantly by using microbubble contrast enhancement and should be considered a adjunct for routine EVAR surveillance.

SARS Academic and Research Prize 0277 SMA – A NEW PROGNOSTIC MARKER IN ORAL CANCERS

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Introduction: Worldwide, approximately 405 000 cases of oral cancer (OSCC) are diagnosed each year, with a 5-year survival rate of around 50%. Although patients with advanced disease show reduced survival, there is no single pathological or molecular feature that identifies aggressive, early-stage tumours.

Method: We retrospectively analysed 282 OSCC and found that the strongest independent risk factor of early OSCC death was a feature of stroma rather than tumour cells.

Results: After adjusting for all factors, high stromal SMA expression, indicating myofibroblast transdifferentiation, produced the highest hazard ratio (3.06, 95% CI 1.65-5.66) and likelihood ratio (3.6; detection rate: false positive rate) of any feature examined, and was strongly associated with mortality, regardless of disease stage. Functional assays showed that OSCC cells can modulate myofibroblast transdifferentiation through TGF-β1 activation and that myofibroblasts promote OSCC invasion. Finally, we developed a prognostic model using Cox regression with backward elimination; only SMA expression, metastasis, cohesion, and age were significant. This model was independently validated on a patient subset ( detection rate 70%; false positive rate 20%; ROC analysis 77%; p < 0.001).

Conclusion: Our study highlights the importance of the tumour stroma in OSCC, identifies a powerful prognostic indicator and potential new target for molecular therapies.

1 SARS Academic and Research Prize 0904 CIRCULATING MICRORNA SIGNATURES: A NOVEL BIOMARKER IN PROSTATE CANCER

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Aim: Mi(cro)RNAs are small non-coding RNAs whose differential expres- sion in tissue has been implicated in the development and progression of prostate cancer. The detection of these miRNAs in the circulation has stimulated their investigation as novel biomarkers in prostate cancer. The aim of this study was to investigate the expression of a panel of candidate miRNAs in the circulation of prostate cancer patients.

Methods: RNA was extracted from whole-blood samples from 65 patients, 37 with prostate cancer and 28 benign samples. Samples were reverse- transcribed using stem-loop primers and expression levels of 10 candidate miRNAs were determined using real-time quantitative-PCR. MiRNA expression levels were then correlated with clinicopathological data.

Results: The analysis of miRNA mean expression levels revealed that circulating levels of the tumour suppressor let-7a (p=0.01) along with the oncogenic miR-141 (p=0.005) could clearly differentiate prostate cancer patients from patients with benign disease. Using these miRNAs in combination increases the specificity and the sensitivity, to levels similar to that of PSA.

Conclusion: Our findings clearly identify significant differences in expression levels of oncogenic and tumour suppressor miRNAs in the bloodstream of prostate cancer patients. This highlights their potential use as novel biomarkers of prostate cancer as an adjunct to PSA.

ASIT Short Paper Prize 0663 THE VALUE OF HYPERBILIRUBINAEMIA IN THE DIAGNOSIS OF ACUTE APPENDICITIS

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Aim: No reliably specific marker for acute appendicitis has been identified. Studies have shown hyperbilirubinaemia to be a predictor of appendiceal perforation, but did not focus on bilirubin as a specific marker for acute appendicitis. The aim of this study was to determine the value of hyperbilirubinaemia as a marker for acute appendicitis.

Methods: A retrospective analysis of appendicectomies (n=472). Patients were grouped according to histology findings and comparisons made between groups.

Results: Mean bilirubin levels were higher for patients with simple appendicitis compared to those with a non-inflamed appendix (p<0.0001). More patients with simple appendicitis had hyperbilirubinaemia on admission (30% vs. 12%) and the odds of these patients having appendicitis were over 3 times higher (OR 3.25, p<0.0001). Hyperbilirubinaemia had a specificity of 88% and a positive predictive value of 91% for acute appendicitis. Patients with appendicitis with a perforated or gangrenous appendix had higher mean bilirubin levels (p=0.01) and were more likely...