Results: Fibrosis quantity at 1 month is significantly associated with graft survival (p=0.01 and 95%CI 0.02 to 0.14). Rejection and severity of rejection were not found to be associated with fibrosis at 1 month. (Rejection: p=0.74 and 95%CI -0.02 to 0.03). (Severity: p=0.81 and 95%CI -0.05 to 0.04)
Conclusion: Renal transplant fibrosis at 1 month post transplant is a strong indicator of graft survival at 1 year post transplantation.

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SARS research & academic prize

0142: CONNEXIN AS A BIOMARKER FOR VENOUS ULCERATION

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Aim: Leg ulceration is a feared complication of venous insufficiency. Cellular communication via Connexins(Cx) is crucial in wound healing, upregulation of which is associated with poor wound healing. This study aims to determine and compare the epidermal Cx levels across stages of venous disease and further determine if Cx can be used as a biomarker for risk of venous ulceration.
Method: Patients were assessed according to CEAP classification: C2(n=10), C4(n=8), and C6(n=8). Paired 4mm punch biopsies of the skin were taken above the ankle(pathological) and above the knee(control). Tissues were stained for H&E and Immunohistochemistry for Cx43, Cx30 and Cx26.
Results: H&E revealed increased inflammation, loss of dermal architecture and epithelial hyper-thickening with increasing CEAP (C2:41.94±9.39μm,C4:106.34±24.3μm,C6:674.44±116.21μm, p<0.05). Overall Cx expression similarly increased across CEAP grades(p<0.05). Cx43 had highest expression (C2:2061.13,C4:4061.08,C6:11639.60, p<0.0001). Cx26 had lesser expression in C2 and C4 but increased significantly in C6 (C2:120.21,C4:558.79,C6:11561.54, p<0.001), similarly Cx30 (C2:145.16,C4:268.88,C6:8286.29, p<0.0001). Significant increased expression of all Cx was seen early in the disease; C2vs.C6(p<0.005) and C4vs.C6(p<0.005).
Conclusion: Cx proteins were expressed increasingly with disease progression which starts early in the disease, suggesting that skin is preconditioned for poor wound healing prior to ulceration. Cx can be used as a biomarker to identify patients that should be treated early.

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0242: APPLICATION OF GOLD NANORODS IN CANCER THERANOSTICS

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Aims: Gold nanoparticles can be utilised as photothermal therapeutic agents because of their strongly enhanced absorption of near infrared light (NIR) resulting in hyperthermia. We investigate the fluorescence and photothermal effect from gold nanorods (GNRs) in the diagnostics and therapy (theranostics) of *in vivo* upper gastrointestinal adenocarcinoma.
Methods: GNRs were functionalised with a fluorophore (Cy5.5 dye) modified with anti-EGFR antibody. Tumour xenografts were established in immunodeficient mice by subcutaneous inoculation of human oesophageal adenocarcinoma (FLO-1) cells. Functionalised GNRs were then randomised to be administered either intratumourally (IT) or intravenously (IV) into mice. Fluorescence imaging was performed to observe tumour site contrast enhancement, followed by tumour irradiation by an 808 nm (NIR) continuous wave laser for three minutes.
Results: *In vivo*, bright fluorescence emissions were observed specifically emanating from tumour sites, providing diagnostic information. NIR irradiation established clinically significant hyperthermia in tumours resulting in consistently successful tumour ablations which were confirmed histologically. Inductively coupled plasma mass spectrometry revealed no evidence of harmful organ accumulation of gold.
Conclusions: Fluorescence imaging of GNRs that localise to cancerous tissue enhances cancer diagnosis. With a single application of NIR light, this minimally invasive and clinically translatable technique can effectively and safely induce irreversible tumour photodestruction.

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0521: TRO40303 REDUCES MITOCHONDRIAL INJURY AND AMELIORATES EXPERIMENTAL ACUTE PANCREATITIS

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Introduction: Mitochondrial permeability transition pore (MPTP) inhibition is a promising therapeutic strategy for treatment of acute pancreatitis (AP). We investigated the effects of TRO40303on MPTP opening and necrosis in pancreatic acinar cells (PACs) and evaluated its efficacy in experimental AP (EAP).
Methods: Mitochondrial membrane potential ($\Delta\psi_M$; TMRM), cytosolic Ca^{2+} levels ($[Ca^{2+}]_C$; Fluo-4) and necrosis (PI) were evaluated in freshly isolated murine and human PACs in the presence and absence of bile acid (TLCS) or fatty acid ethyl ester (POAEE) using confocal microscopy. EAP was induced by intraperitoneal (IP) caerulein injections, retrograde pancreatic ductal TLCS infusion or IP injections of palmitoleic acid and ethanol. Liposomal TRO40303 was given post AP induction. AP was assessed by standard biomarkers and blinded histopathology.
Results: TRO40303 protected loss of $\Delta\psi_M$ induced by 500 μM TLCS or 100 μM POAEE in isolated PAC and improved $[Ca^{2+}]_C$ clearance. TRO40303 reduced necrosis in murine and human PACs (p<0.05). TR040303 significantly reduced serum amylase, pancreatic trypsin, pancreatic and lung myeloperoxidase and histopathological scores in all models of EAP.
Conclusion: TRO40303 protects mitochondria, reduces necrosis and ameliorates the severity of three different models of EAP. TR040303 is a candidate drug for the treatment of human AP.

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1122: FIELD CANCERISATION IN COLORECTAL CANCER: CHARACTERISATION OF THE GENE EXPRESSION PROFILE OF THE MUCOSAL FIELD AROUND COLORECTAL CANCERS AND POLYPS

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Aim: Field cancerisation describes genetic changes in the macroscopically normal colonic mucosa (MNM) around a cancer which render it premalignant without morphological change. This study aimed to characterise the gene expression profile in the MNM around cancer and polyps compared to control subjects.
Methods: Subjects (n=15) were recruited and mucosal pinch biopsies taken. A two channel micro-array experiment was performed (SurePrint G3 Human Gene Expression 8x60K Gene Expression array). Genes (>1.5 fold different, p value of <0.05) were selected and analysed using PANTHER bioinformatics software.
Results: In total, 1665 genes were differentially expressed. The MNM around polyps demonstrated differential gene expression of genes involved in cell adhesion, cell morphology and cellular process. In comparison, genes responsible for the immune response, antigen processing and natural killer cell activation (fold enrichment >5, p<0.001) were found with transition to cancer. Comparing cancer to polyp identified genes that participate in cell signalling, protein degradation and microtubule binding (fold enrichment 3.01, p<0.001: 2.66, P<0.001 and 3.62, p<0.001, respectively).