ORAL PRESENTATIONS 2B
HEPATOBILIARY

O59 FIRST UK EXPERIENCE OF ROBOTIC VERSUS LAPAROSCOPIC DISTAL PANCREATECTOMY

SM Robinson, JJ French, DM Manas, J Logue, RM Charnley, SA White
Department of HPB Surgery, Freeman Hospital, Newcastle upon Tyne

Introduction: Robotic distal pancreatectomy offers potential advantages to conventional laparoscopy including 3D visualisation, improved ergonomics and instrument dexterity. Here we compare our initial experience with robotic distal pancreatectomy (RDP) to our early experience with conventional laparoscopic procedures (LDP).
Method: Patients undergoing RDP (n=5) were compared to our first 10 cases of LDP (n=10). Data relating to clinical outcomes, histology and perioperative details were retrieved and complications graded according to the Dindo-Clavien classification. Statistical analysis was performed with SPSSv.22.
Result: Patients in both groups were of similar age (59vs.65 yrs; p=0.59) and gender. The indications for surgery were similar in both groups (predominantly cystic neoplasms). There was a modest increase in surgical time for RDP (339minvs. LDP 271min; p=0.17). There were 3 complications in the RDP group and 4 in the LDP group although one of these was of Grade 4 in the LDP group (p=0.53). There were 2 pancreatic fistula in the RDP group and 1 in the LDP group (p=0.24). There was no mortality in either group. The median length of hospital stay was 8 days in both groups. 2 patients in the LDP group had a R1 resection compared to 0 patients in the RDP group (p=0.51).
Conclusion: This is the first UK series of robotic pancreas resection and compares favourably with our previous experience of LDP. Althougb RDP is currently more time consuming and expensive during the learning curve this will improve and is undoubtedly far superior to conventional LDP in terms of technical excellence.
Take-home message:
Robotic distal pancreatectomy is a technically superior viable alternative to conventional laparoscopic surgery.

O60 USE OF AN EX-VIVO ORGAN PERFUSION SYSTEM TO DETERMINE THE THERAPEUTIC ALGORITHM FOR MICROWAVE ABLATION (MWA) OF LIVER TUMOURS

PN Siriwardana (1) (2), S Singh (3), E Johnston (3), J Watkins (4), S Bandula (3), R Iling, BR Davidson (1) (2)
(1) Division of Surgery and Interventional Sciences, University College London. (2) Hepatopancreatobiliary and Liver Transplant Surgery Unit, Royal Free London NHS Foundation Trust (3) Interventional Oncology Service, University College Hospital 4. Department of Cellular Pathology, Royal Free London NHS Foundation Trust
Introduction: Microwave ablation (MWA) is a treatment for focal liver tumours. Curative MWA requires complete tumour ablation with a tumour free margin. Power settings used for MWA depend on the manufactures guidance and are based on data from MWA of non-perfused large animal livers, which may not be appropriate for in-vivo ablation of human liver tumours. We compared the MWA characteristics in ex-vivo perfused livers (PLA) with non-perfused livers (NPLA).
Method: Six fresh porcine livers retrieved using organ transplant retrieval techniques were used for evaluation of MWA. Perfused (n=3) and non-perfused livers(n=3) were progressively warmed to 37C, by oxygenated, O-ve human blood using an organ-perfusion circuit. Perfusion was discontinued in the NPL group whilst in the PLA group perfusion was maintained during MWA. Following MWA (140W X 2min), the ablation zones were bisected sagittally. NADH and H&E staining were performed on sections to assess the viability of cells in the ablation and marginal zones.
Result: Twenty-two MWA zones were compared(9PLA, 13NPLA). Ablation zones demonstrated a central white and a peripheral red zone. Cells in the white-zone were non-viable with no NADH staining. The red-zone had progressive NADH staining towards periphery suggesting incomplete cell death. The white and red zones of the PLA group were significantly smaller than the NPLA group (Short-axis 17.8 ± 2.7mm vs 21.1 ± 3.2, p=0.003, Long-axis 40.69 ± 3.9mm vs 39.63 ± 5.2, p=0.44.
Conclusion: MWA algorithms based on non-perfused organ data underestimates the ablation zone which could result in incomplete tumour ablation.
Take-home message:
Microwave dosimetry algorithms based on non-perfused organ data underestimates the ablation zone which could result in incomplete tumour ablation. Ex-vivo perfused porcine liver models can be used to establish clinically safe dosimetry settings.

O61 INITIAL EXPERIENCE IN IRREVERSIBLE ELECTROPORATION FOR THE TREATMENT OF LOCALLY ADVANCED UNRESECTABLE PANCREATIC CANCER

JAG Moir, T Tsirlis, P Littler, K Sumpter, M Jones, H Duncan, SA White, JJ French, DM Manas
HPB Unit, Freeman Hospital, Newcastle Upon Tyne

Introduction: Irreversible electroporation (IRE) is a novel non thermal ablative modality. We present our experience in the treatment of locally advanced unresectable pancreatic ductal adenocarcinoma (PDAC).
Method: Data was collected retrospectively on 6 patients who underwent IRE between October 2013 and March 2015. IRE approach was either percutaneous CT-guided (n=4) or US-guided as an adjunct to an open surgical bypass (n=2). The radiological response has been evaluated according to the modified RECIST criteria.
Result: Three men and three women with a median age of 57 years (range 46-69) underwent IRE; all but one had received previous chemotherapy. Median maximal tumour diameter was 34mm (range 24-60). Tumour location was either pancreatic head (n=4) or body (n=2). 3-5 needles were used for the procedure. One patient died soon after open procedure due to multi-organ failure. Of the remaining patients, at 3 month follow up CT, one had a partial response, three had stable disease and one progressive disease according to RECIST criteria. At 6 months, of the two patients with SD, one had progressed and the other (who was chemotherapy naïve) had died from disseminated disease. With a median follow up of 10 months (range 5-23), 4 patients are still alive.
Conclusion: Irreversible electroporation is a viable treatment option in the management of locally advanced pancreatic cancer. Pre-treated patients who respond to chemotherapy and are amenable to percutaneous ablation seem to be the most suitable candidates.
Take-home message:
Irreversible electroporation (IRE) represents an ideal ablative therapy for pancreatic tumours given the non-thermal effect resulting in reduced morbidity. This small case series suggests the percutaneous approach for patients who have responded to chemotherapy represents the ideal scenario.

O62 AN EVIDENCE BASED LITERATURE REVIEW FOR THE SURGICAL MANAGEMENT OF EXTRA-HEPATIC PORTAL VEIN THROMBOSIS IN THE NON-CIRRHOTIC PATIENT

J George, HN Haboubi
Singleton Hospital

Introduction: Portal vein thrombosis is a relatively uncommon condition (up to 0.5% prevalence). Non-cirrhotic extra-hepatic portal vein thrombosis is even rarer but has a high risk of bleeding and complex disease progression for patients that fail to spontaneously recanalise. With paucity of strong consensus in the surgical management of this disease, we review the best available evidence and suggest a unifying approach to managing these patients.
Method: A PubMed search was performed using MeSH terms of Portal vein thrombosis AND Surgical management and Non-Cirrhotic Portal Hypertension AND Surgical Management. The inclusion criteria were articles that include case series, reviews, systematic reviews and meta-analyses in the management of portal vein thrombosis between January 2000 and June 2015. Initially 465 papers were found and these were filtered using the above criteria to 14 papers which were sourced and analysed.
Result: Surgical options should be considered in special situations once and when anticoagulation and endoscopic approaches have failed. No clear consensus regarding the best setting for surgery were found, but factors identified to be taken into consideration include: acute or chronic thrombus, underlying aetiology, location and size of thrombus (Yerdel grade) and presence of complications (bleeding/encephalopathy/ascites). Amalgamating the best evidence available, a user-friendly algorithm has been produced to help aid the management of these patients.
Conclusion: Portal vein thrombosis carries a risk of complication that if left untreated can result in death. The management of these patients is complex and requires careful planning. Our algorithm will aid surgical management of these patients.
Take-home message:
A clear approach of when to pursue a surgical intervention and an idea of which procedure would be best for your patient using the best evidence.

O63 EXPANDING THE INDICATIONS FOR PANCREAS RESECTION AND AUTOLOGOUS ISLET CELL TRANSPLANTATION (IAT) IN BOTH ADULTS AND CHILDREN.

JA Logue (1), WE Scott III (2), M Honkanen-Scott (2), J De Haviland (2), A Abou-Saleh (1), H Gabre (3), DM Manas (1), JAM Shaw (1), A Dickinson (2), AR Dennison (4), RM Charnley (1), SA White (1)
(1) Institute of Transplantation, Freeman Hospital, Newcastle upon Tyne, (2) Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, (3) Department of Surgery, Great North Children's Hospital, Newcastle upon Tyne, (4) Department of Hepatobiliary and Pancreatic Surgery, University Hospitals of Leicester, Leicester

Introduction: Pancreas resection combined with IAT is a controversial procedure with limited experience in the UK and is not funded by the NHS. We present our experience of IAT in patients with chronic pancreatitis and pancreatic trauma including the UK's first paediatric transplant.
Method: We have performed 6 pancreatic resections with IAT over 18 months. 3 patients with chronic pancreatitis (2 hereditary, 1 idiopathic) have undergone total pancreatectomy and IAT. Two patients had previous Frey procedures. 3 patients (2 adults, 1 child) sustained blunt pancreatic trauma and underwent extended left pancreatectomy combined with IAT. Complications were graded according to the Clavien-Dindo classification.

Result: In the chronic pancreatitis group the islet yield was low due to severe fibrosis /previous drainage procedures (<50,000 IEQ). The first patient is now opiate independent and the remaining 2 patients continue on reducing doses. All have marked improvement in their quality of life. All require low dose insulin analogue therapy with in vivo C-peptide secretion. In contrast the trauma patients had a much greater islet yield (99,750 – 298,149 IEQ). All are insulin independent. There were no complications related to portal vein infusion and no deaths, one patient required re-laparotomy for an infected collection.
Conclusion: Pancreatectomy and IAT can be used as a salvage procedure in patients who have failed all other therapy but in our opinion results would be superior if performed much earlier in the course of their disease. It is also a feasible management option for complex pancreatic trauma in both adults and children.
Take-home message:
Pancreas resection and autologous islet cell transplantation should be considered as an earlier intervention in patients with chronic pancreatitis. Furthermore, it a management option for complex pancreatic trauma not amenable to endoscopic therapy in both paediatric and adult patients.

O64 QUALITY OF LIFE PREDICTORS IN CHRONIC PANCREATITIS: PRELIMINARY RESULTS FROM A COHORT STUDY

SM Robinson, SA White, J Logue, JJ French, RM Charnley
Department of HPB Surgery, Freeman Hospital, Newcastle upon Tyne

Introduction: Chronic pancreatitis is associated with a negative impact on patients quality of life. The aim of this study was to determine the impact of various clinical factors on the quality of life in this cohort of patients.
Method: 41 patients with chronic pancreatitis have so far been recruited into this study. Clinical data was collected using a standard proforma, baseline laboratory investigations performed and quality of life assessed using the EORTC QLQ-C30 and PAN-28CP questionnaires. Data analysis was performed using SPSS v.22 using non-parametric tests (Kruskall Wallis test and Spearmans correlation coefficient).
Result: Being a current smoker was associated with a significant reduction in cognitive (50vs.83; $p<0.05$) and social functioning (17vs.67; $p<0.05$) scores as well as poorer symptom scores for fatigue, nausea and vomiting (67vs.17; $p=0.01$), appetite (67vs.0;$p<0.01$), dyspnoea and insomnia. On-going alcohol was associated poorer appetite scores (16.7vs.67; $P<0.05$). Malnutrition (i.e. BMI<18.5) was associated with reduced global QOL scores (84vs.50; $p<0.05$) and physical functioning scores (27vs.73; $p<0.05$) as well as increased dyspnoea (100vs.33; $p<0.01$). There was a negative correlation between white cell count and global quality of life ($rs=-0.348$; $p<0.05$) and physical functioning ($rs=-0.423$; $p<0.01$). White cell count positively correlated with dyspnoea score ($rs=0.406$; $p<0.01$), insomnia ($rs=0.354$; $p<0.05$) and appetite loss ($rs=0.379$; $p<0.05$). The white cell count was higher in current smokers (9vs.6; $p<0.01$). HbA1C did not correlate with quality of life measures.
Conclusion: Smoking among patients with chronic pancreatitis seems to be associated with an increased inflammatory and a diminished quality of life across multiple domains.

Take-home message:
Smoking and subsequent low grade inflammation are the biggest predictors or poor quality of life in chronic pancreatitis.

O8 THE EFFECT OF MONOCARBOXYLATE TRANSPORTER 1 INHIBITION IN THE TUMOUR MICROENVIRONMENT OF PANCREATIC DUCTAL ADENOCARCINOMA

JAG Moir (1,2), D Mann (2), J Mann (2), RM Charnley (1), DM Manas (1), JJ French (1), SA White (1)
(1) HPB Unit, Freeman Hospital, Newcastle Upon Tyne (2) Fibrosis Lab, Institute of Cellular Medicine, Newcastle University

Introduction: An inhibitor to the monocarboxylate transporter MCT1, which regulates lactate influx, has recently been developed with the aim of inducing cell death through excessive acidification. This study investigates the effect of MCT 1 inhibition on both pancreatic ductal adenocarcinoma (PDAC) cells and pancreatic stellate cells (PSCs), which have a pro-tumorigenic role.
Method: An in vitro transwell system was adopted for co-culture of PSCs and PDAC cell lines (Miapaca2, Panc1). The MCT1 inhibitor AZD3695 was used to treat at a concentration of 100nM for 48hrs. Gene expression (MCT1, IL6, IL8) was analysed using qRT-PCR. Cell proliferation was calculated using an MTT assay.
Result: Treatment in co-culture of Miapaca2 and PSCs resulted in no significant change MCT1 gene expression in either cell type. Treatment of PSCs, Miapaca2 and Panc1 cells alone resulted in a reduction in proliferation of 10.7%, 24.4% and 11.0 % respectively (p=NS). When treated in co-culture with PSCs, Miapaca2 and Panc1 revealed a less marked reduction of 23.1% and 1.7% respectively (p=NS). Co-culture revealed no change in PSC proliferation, however decreased inflammatory activity was seen through reductions in IL6 and IL8 expression of 41% and 51% respectively ($p<0.05$).
Conclusion: The mode of action of MCT1 inhibition is more related to the anti-inflammatory impact on PSCs rather than directly targeting cancer cells. Further work is required to assess effects on cancer cell migration and invasiveness.

Take-home message:
Targeting the monocarboxylate transporter MCT1 can disrupt lactate shuttling between pancreatic stellate cells (PSCs) and pancreatic ductal adenocarcinoma (PDAC). This in vitro study demonstrates that MCT1 inhibition causes reduced proliferation of both PSCs and PDAC, and most notably induces a significant anti-inflammatory effect on PSCs.