Introduction Primary Sclerosing Cholangitis (PSC) is an incurable chronic immune mediated biliary disease that occurs in individuals with IBD. We have previously reported aberrant expression of the gut chemokine, CCL25 in the human PSC liver and the recruitment of CCR9 expressing gut derived T cells. In order to gain further insights into the consequences of aberrant CCL25 expression in the liver in PSC, we induced CCL25 in the murine liver and assessed biliary inflammation in-vivo.

Methods To clarify the functional role of CCL25 expression in the liver, we generated a murine liver specific knock-in of CCL25 expression and tested the effects on immune mediated cholangitis using the Ova-Bil model of antigen driven biliary injury. Immune cell phenotyping and isolation were performed using flow cytometry. Liver injury was assessed by ALT measurements and histopathology. pDC function was assessed ex-vivo in co-culture with naive transgenic TCR T cells

Results Ova-Bil x CCL25KI mice developed significantly less liver injury than *wt* Ova-Bil controls. Flow cytometry revealed increased numbers of CCR9⁺ pDCA-1⁺ plasmacytoid dendritic cells (pDC) in the Ova-Bil x CCL25KI livers. CCR9^{-/-} x Ova-Bil mice developed significantly worse liver injury compared to *wt* Ova-Bil controls and severely lacked pDCs in the liver. Adoptive transfer of *wt* pDCs to CCR9^{-/-} x Ova-Bil mice rescued the phenotype and reduced the degree of liver injury comparable to *wt* Ova-Bil controls. In vitro studies demonstrated the ability of liver-derived pDCs to induce regulatory T cells in a retinoic acid dependent manner as a possible mechanism by which CCR9⁺ pDCs are able to control liver injury.

Conclusion Aberrant expression of CCL25 in the liver enhances recruitment of CCR9⁺ pDCs and appears to be an attempt to limit the extent of hepatic inflammation in PSC. Regulatory effects of CCR9⁺ pDCs appears to be at least in part mediated through the expansion of hepatic regulatory T cells.

Disclosure of Interest None Declared

REFERENCE

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OC-055 A NOVEL TECHNIQUE FOR FULL THICKNESS LAPAROENDOSCOPIC EXCISION OF COLONIC LESIONS: AN EXPERIMENTAL PILOT STUDY

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Introduction Introduction of a National Bowel Cancer Screening Program in England has resulted in an increasing number of patients diagnosed with endoscopically irresectable colonic polyps. A significant proportion of these patients is referred for hemicolectomy and is subject to a significant risk of morbidity and mortality. Therefore, a less invasive treatment option is required and to address this, we modified a previously reported full thickness laparo-endoscopic excision (FLEX) technique.

Methods Surgery was performed in five 70-kg pigs. A simulated colonic polyp was created by endoscopic injection of Spot® and the clearance margin delineated by circumferential placement of mucosal argon plasma coagulator (APC) marks. Full thickness eversion of the colonic wall, including the lesion, was achieved by endoscopic placement of prototype BraceBars (BBs). The everted section was

excised using a linear laparoscopic stapler placed below the BBs. The first pig was terminated immediately and others were sacrificed 8 days after surgery.

Results The median procedure duration, defined from placement of mucosal APC marks to specimen excision, was 26 min (range 20–31 min). All excised specimens contained three pairs of BBs, included the APC marks and had a median diameter of 5.1 cm (range 4.5–6.3 cm). Postoperative recovery in survival animals was uneventful. Post-mortem evaluation demonstrated well-healed resection sites with no evidence of intra-abdominal infection or inadvertent organ damage. Endoscopic evaluation of anastomoses at post-mortem demonstrated a widely patent lumen without evidence of stenosis at excision sites. Histological examination of the anastomoses showed primary closure by mucosal abutment and regeneration, with repair and restoration of submucosal continuity.

Conclusion This proof-of-concept study has demonstrated the feasibility and safety of a novel full thickness colonic excision technique that is now ready for translation as an alternative to hemicolectomy. The excision size will accommodate most colonic polyps that currently come to surgery. Accurate placement of endoscopic BBs ensures complete excision, reducing the risk of residual disease and recurrence, while laparoscopic overview avoids collateral damage. The ability to preserve mesenteric vasculature and colonic length is likely to result in less morbidity and mortality, better functional outcomes and the approach should reduce treatment costs.

Disclosure of Interest None Declared

OC-056 LONG-TERM TRENDS IN COMORBIDITY AND RISK SCORES AND THEIR INFLUENCE ON OUTCOMES OF UPPER GASTROINTESTINAL BLEEDING

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Introduction The prevention of upper gastrointestinal bleeding (UGIB) can be facilitated by understanding the changes in environmental and socio-pathological factors; these might not become obvious in short-term studies. We, therefore, aimed to study the changes in comorbidity and risk scores and their influence on the outcomes of UGIB over a 14-year period.

Methods We analysed the clinical characteristics of all patients presenting with UGIB to a single institution, 1996–2010. The Charlson's comorbidity and the complete Rockall scores were analysed, together with patients' drug use and 30-day mortality. Trends with time were assessed using logistic regression analysis with year of presentation as a continuous predictor variable. Regression coefficients were expressed as odds ratios (OR), representing the relative change in odds of death or other binary dependent variables over a time interval of one year.

Results A total of 2669 patients were included. The Charlson score increased significantly with time ($P < 0.001$), the odds of a high (3+) score increasing at a relative rate of 4.4% a year (OR = 1.044, 95% CI 1.022–1.065). No significant trend with time was noted for age ($p = 0.09$), haemoglobin level ($P = 0.47$) or Rockall score ($P = 0.94$). The overall 30-day mortality was 4.9% and this showed no relationship with time ($P = 0.28$). However, when adjusted for the increasing comorbidity, the odds of death within 30 days decreased significantly at a relative rate of 4.5% per year [OR = 0.955 (0.914–0.997); $P = 0.038$]. Trends in the prevalence of taking potentially damaging and protective drugs are shown in Table-1, below. The rise in use of aspirin, other anti-thrombotic drugs and SSRIs [with pro-UGIB activity] was paralleled by a rise in the use of PPIs [protective activity] and beta-blockers, ACE inhibitors, and statins [being able to affect mortality].

Abstract OC-056 Table 1 Trends in the prevalence of taking potentially damaging and protective drugs

DRUG	OR (95%CI)	P-Value
Aspirin	1.025 (1.002–1.048)	0.030
Other antithrombotic drugs	1.089 (1.057–1.122)	< 0.001
NSAIDs	1.014 (0.985–1.043)	0.35
Beta blockers	1.086 (1.054–1.118)	< 0.001
ACE inhibitors	1.136 (1.100–1.173)	< 0.001
SSRI	1.048 (1.009–1.088)	0.015
Statins	1.168 (1.131–1.207)	< 0.001
Proton pump inhibitors	1.126 (1.102–1.152)	< 0.001

Conclusion Patients with UGIB presented with progressively increasing comorbidity over the 14-year period 1996–2010. The use of both potentially damaging and protective drugs also increased. Raw 30-day mortality was unchanged over the same period, but decreased significantly with time when adjusted for comorbidity. These observations might have clinical implications.

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OC-057 THE “SPEEDBOAT”: A NEW MULTI-MODALITY INSTRUMENT FOR ENDOSCOPIC RESECTION IN THE GASTROINTESTINAL TRACT

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Introduction Large sessile or flat intestinal lesions > 2 cm are optimally removed en-bloc for more accurate histology and for completeness of resection. Current submucosal dissection devices are technically challenging to use resulting in long and sometimes incomplete procedures with a high risk of major complication. We describe, for the first time, a simple to use, multi-modality endoscopic device (“Speedboat”) for wide-field, en-bloc mucosal resection.

Methods The ‘Speedboat’ cuts in forward, lateral and oblique planes using bipolar radio frequency (RF) cutting, provides haemostasis with microwave coagulation and incorporates a retractable needle for submucosal injection and tissue irrigation. The instrument blade has an insulated ‘hull’ to prevent thermal injury and the device catheter is partially torque stable allowing rotation and orientation of the hull to protect the underlying muscularis propria. The electrosurgical generator is comprised of 2 power sources, one operating at 400 KHz (RF) and the other at 5.8 GHz (microwave).

Speedboat submucosal dissection technique (SSD) was performed and video recorded on 3 consecutive 60 kg pigs. Mucosal areas to be resected were marked prior to submucosal injection. The mucosa was then circumferentially incised and resected by SSD. The time taken to complete resection, complications encountered and power settings used were recorded. Immediately after the procedure, the animals were euthanized, and the resection defects measured and assessed histologically.

Results Eight consecutive resections were performed (2 per animal), 7 in the colorectum and 1 in the antrum of the stomach. The median time to complete a resection was 37 minutes range (30–60 minutes) using RF cutting 24 W, voltage circa 300 Vrms. Median defect size (longest diameter) was 53.5 mm, range 40–80 mm. Microwave coagulation was applied for either minor bleeding or visible

vessels on 32 occasions (mean energy 7.5 W). An endoclip was used once to control arteriolar bleeding but no other haemostatic device was required. There were no perforations and histology showed an intact and viable muscle layer with some remaining submucosa in all cases.

Conclusion This initial evaluation of the “Speedboat” suggests that it facilitates rapid and safe en-bloc mucosal resection in the colorectum and gastric antrum.

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OC-058 BILE ACID MALABSORPTION: “THE UNUSUAL SUSPECT”. A VERY FREQUENT CAUSE FOR DIARRHOEA AFTER TREATMENT FOR MANY DIFFERENT CANCER TYPES

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Introduction Approximately 16,000 patients per year are left with a chronic change in bowel function and gastrointestinal symptoms following treatment for cancer. This can have a significant impact upon quality of life and even compromise on-going cancer therapy. Previous small studies focusing mainly on patients with gynaecological cancers suggest that bile acid malabsorption (BAM) may be an important cause of radiotherapy-induced diarrhoea. This retrospective study aims to elucidate the prevalence of BAM in patients referred to a specialist gastroenterology clinic which treats patients with consequences of cancer treatments.

Methods Patients referred to our clinic are managed using a peer reviewed algorithm. If they report diarrhoea, defined as Bristol Stool Chart type 6–7, a routine referral for a SeHCAT (75-selenium homocholic acid taurine) scan is made to exclude BAM. BAM is diagnosed when the SeHCAT 7 day retention is < 15% and is graded mild (10–15%), moderate (5–10%) and severe (< 5%).

Results Between 2009–2012, 262 patients were referred for a SeHCAT scan. 139 (53.1%) were male (median age 66, range 32–89) and 123 (46.9%) female (median age 61, range 20–86). 79 (37%) patients had been treated for gynaecological, 94 (44%) for urological, 41 (19%) for anorectal and 30 (11%) for upper gastrointestinal tract cancers. A further 18 (7%) were treated for other cancer types (breast, lung and haematological). BAM was diagnosed in 24 patients (25%) treated for urological cancers, with 17% (n = 4) having severe BAM. 46 patients (58%) treated for gynaecological cancers had BAM, severe in 57% (n = 26). BAM was diagnosed in 22 patients (54%) treated for anorectal cancers, with 55% having severe BAM (n = 12). In 15 patients (50%) treated for upper GI cancers, the majority (73%) had severe BAM (n = 11). For patients with other cancer types, BAM was diagnosed in 8 patients (44%) with severe BAM in 2 of these (25%).

Conclusion The frequency of severe bile acid malabsorption and its impact on quality of life is poorly appreciated amongst those who treat cancer. BAM is a common problem in patients treated for a wide variety of cancers with a number of different treatment modalities. Given the effectiveness of dietary fat manipulation combined with a new generation of bile acid sequestrants, SeHCAT scanning should be a first line in investigating patients with diarrhoea after cancer therapies.

Disclosure of Interest None Declared