procedure it can be helpful to decompress the gallbladder by aspirating its contents. The benefit of gallbladder aspiration in the elective setting is however unclear.[1 2] It is important to be aware of the likely microflora of bile in patients undergoing emergency cholecystectomy to facilitate the use of appropriate targeted antibiotics. The aim of this study was to establish the prevalence of intraoperative gallbladder aspiration during acute cholecystectomy and to determine the microflora after microscopy and culture.

Methods A retrospective analysis of patients who underwent emergency cholecystectomy for acute cholecystitis over an 18-month period (July 2010 to January 2012) identified from PAS data. Cross referencing with microbiology electronic database for microscopy and culture findings from gallbladder aspiration samples.

Results 124 patients (36 male, 88 female, age range 18–90 years) underwent cholecystectomy during the study period. 29 (23.4%) patients underwent intraoperative aspiration of gallbladder contents, of which 20 (69.0%) had no organisms seen at microscopy and 14 (48.3%) grew no organisms after incubation in culture medium. Abstract PTU-088 table 1 outlines the organisms isolated in the remaining 15 patients; four grew an isolated organism and 11 grew more than one organism and also details the antibiotic profile following culture.

Abstract PTU-088 Table 1 Microorganisms isolated after culture of gallbladder aspirates and antibiotic profile (S = sensitive, R = resistant)

		Antibiotic							
		Amoxicillin		Augmentin		Tazocin		Gentamicin	
	Frequency	S	R	S	R	S	R	S	R
E coli	15	2	10	8	5	12	2	6	0
Klebsiella pneumonia	4	0	4	5	0	5	0	3	0
Enterococcus faecalls	3	3	0	0	0	0	0	0	0
Enterobacter cloacae	2	0	1	0	2	2	0	0	0

Conclusion In order to facilitate emergency cholecystectomy for acute cholecystectomy it is often necessary to decompress the gallbladder by aspirating its contents. In our case series this was necessary in 23% of patients. Almost half of aspirates were found to be sterile. In the remainder, the most common organism isolated after culture is *Escherichia coli*, whch is usually resistant to amoxicillin, but sensitive to tazocin. However, the sensitivity of *E coli* to augmentin is less clear and surgeons should be aware of this when initiating antibiotic prophylaxis for acute cholecystitis.

Competing interests None declared.

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PTU-089 NATIONAL STUDY OF OUTCOMES FOR CHOLANGIOCARCINOMA PATIENTS FOLLOWING BILIARY ENDOSCOPY: LINKAGE ANALYSIS OF ADMINISTRATIVE DATA FOR ENGLISH HOSPITALS (2006–2008)

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Introduction Cholangiocarcinoma (CC) is a rare and challenging cancer with poor prognosis and low operative rate. Early successful biliary drainage is a key determinant of outcome and ERCP is the primary modality. It is unclear whether current care organisation for CC is optimal. We report a national study aimed at describing outcomes for all patients undergoing ERCP for CC in English hospitals and volumes at cancer networks and institutions.

Methods We built on linkage methods applied to overall ERCP mortality[1] to develop new techniques to map the entire pathway of hospital care for incident cases of CC. 2 years of Hospital Episode Statistics (HES) data were merged (2006–2008) and admissions screened for CC diagnosis. To identify a 1-year incident cohort of CC, we selected only patients with first cancer coding in middle year (October–September), then extracted all admissions within 6 months (before and after) of first cancer coding, ordered chronologically, screened for ERCP, radiological intervention (PTC) and major surgery codes. Identified first and subsequent procedure dates, admission diagnoses and co-morbidity. Linkage to death registry for death date. Cases allocated to cancer networks using provider codes.

Results Nationally, **1211** CC patients underwent ERCP with mean age (SD) of **72** (12) years and 623 male (**51.4%**). First ERCP was performed during an acute (**emergency**) hospitalisation in 690 cases (57%). **ERCP case volumes** for CC ranged from 7 to 79 patients per Cancer Network and 1–57 patients per Trust (n=146 institutions). **Outcomes (post-first ERCP): Mortality**: 7 day [40 (**3.3%**)]; 30 day: 172 (**14.2%**); 365 day: 781 (**64.5%**). **Emergency readmission**: 7 day: 110 (**9.1%**); 30 day: 252 (**20.8%**). **Additional PTC**: 213 (**17.6%**) with poorer 365 d survival in those needing both (ERCP alone: 64.5% vs ERCP+PTC: 73%, p=0.013, non-surgical cases only). Patients requiring first ERCP during an **acute hospitalisation** had poorer prognosis than those on elective pathway (Log rank, p<0.001). 365 day mortality for surgical **42.4%** vs non-surgical **66.2%** (p<0.001).

Conclusion First endoscopic intervention for this rare form of cancer is undertaken in most English hospitals, often during acute hospitalisation. There is wide variation in institutional case load. These data provide a potential tool for exploring variation in relation to local or network service provision and organisation.

Competing interests None declared.

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PTU-090 TYPE 2 DIABETES AS A POSITIVE RISK FACTOR IN THE AETIOLOGY OF CHOLANGIOCARCINOMA: A CASE-CONTROL STUDY IN TWO UK CENTRES

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Introduction The incidence of cholangiocarcinoma has increased worldwide with the mortality still remaining high. The aetiology in Western populations is largely unknown, but diabetes may be involved by influencing the neoplastic process via hyperinsulinaemia and the stimulation of the IGF-1 axis. As there are few population based studies looking at this, the aim of this study was to investigate if there is a positive association between type 2 diabetes and the development of cholangiocarcinoma in two centres in the UK. As oral hypoglycaemics may have anti-cancer properties, these drugs were considered when assessing the effect of diabetes.

Methods Cases of cholangiocarcinoma were identified in Norwich (years 2004–2010) and Leicester (year 2007) from multi-disciplinary team meeting clinical databases. Inclusion required diagnostic evidence from CT scans and/or histology. Controls were patients, of similar ages and gender, with basal cell carcinomas treated in the dermatology departments at each hospital. The case notes of all subjects were reviewed to obtain confirmatory clinical information on cholangiocarcinoma and type 2 diabetes. Data were analysed using unconditional logistic regression to calculate ORs with 95% CIs, adjusted for age at diagnosis and gender.

Results A total of 80 cases of cholangiocarcinoma (median age at diagnosis = 76 yrs, range 41–96 years, 51% men) and 411 controls were identified. All patients had radiological evidence of cancer, with 86% involving the extrahepatic biliary system. The median survival of cases was 158 days (range 2–1092 days). There was a statistically significant increase in the odds of developing cholangiocarcinoma for those with type 2 diabetes (OR=3.00, 95% CI 1.44 to 6.25), but not for type 1 (OR=1.62, 95% CI 0.165 to 16.08). When the effect of type 2 diabetes was adjusted for use of oral hypoglycaemics, the associations were maintained (metformin OR=3.60, 95% CI 1.26 to 10.25 and sulphonylureas, OR=6.31, 95% CI 2.31 to 17.18).

Conclusion This epidemiological data supports the biological evidence for type 2 diabetes promoting the development of cholangiocarcinoma. Type 2 diabetes should be considered as a potential risk factor for cholangiocarcinoma in future aetiological studies.

Competing interests None declared.

PTU-091 PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY (PTC); ARE WE HITTING THE TARGET?

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Introduction Percutaneous transhepatic cholangiography (PTC) is a procedure used to access the biliary tree for diagnostic purposes in obstructive jaundice, and to facilitate palliative stenting across biliary strictures. A previous study has shown a 19.8% in-patient mortality and significant morbidity for PTC.[1] Our aim was to audit local practice in order to identify risk factors for complications and death and to identify ways of reducing patient exposure to PTC.

Methods Retrospective Audit of all patients presenting to Nottingham University Hospitals from 1 October 2010 to 31 December 2010. Patient demographics, indication for PTC, co-morbidities, previous ERCP procedures performed, length of stay, PTC procedural details, morbidity and 30-day mortality was documented from electronic and paper records.

Results 44 patients underwent 72 procedures with a median of 1.5 procedures per patient. Median age was 67 years (IQR 62–77), 42% were female and malignant disease was seen in 91% of patients undergoing PTC. In 68% of procedures the patients had one or more co-morbid conditions. 47% of procedures were for 1st PTC and 53% were for 2nd or subsequent PTC. Overall, failed ERCP was the indication in 36% of procedures, reasons for ERCP failure were; failed cannulation (50%); inability to cross stricture (25%); hilar stricture (11%). Median length of stay was 10 days for all procedures, two patients went home the day of procedure. Frequencies for each indication for PTC were; 38% distal; 27% mid-CBD/CHD stricture; 8% hilar stricture; 7% multiple strictures; 20% other. Intended drainage was achieved in all but one patient and the stricture was crossed in 93% procedures. Median pre-procedural bilirubin was 184 μmol/l (IQR 78–271) with a delta bilirubin at 72 h post PTC of 33 μmol/l (2–89). Overall complications were seen in 41% patients; 17% minor complications (pain and biliary sepsis) and 24% suffered major complications including severe sepsis and renal failure. 30-day mortality was 18% with 13% being secondary to complications. Median survival overall was 182 days (IQR 81–321). Association with early death were Age*, ≥1 co-morbidities*, 72 h post-procedural creatinine*, complications, hilar stricture** and pre-procedural eGFR** (*p<0.05, **p<0.01).

Conclusion PTC is associated with a high incidence of complications and 30-day mortality. Risk factors for poor outcome include patient age; co-morbidity and renal function. Outcomes will likely be improved by better patient selection and pre-procedural optimisation. MRCP as part of the diagnostic pathway may identify strictures that should proceed directly to PTC and those where definitive stenting with cytology can be offered as a single-step procedure.

Competing interests None declared.

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Inflammatory bowel disease II

PTU-092 CROHN'S DISEASE ASSOCIATED NOD2 VARIANTS SHOW DIFFERENTIAL ACTIVATION OF NF-κB IN RESPONSE TO AUTO-SIGNALLING AND MURAMYL DIPEPTIDE

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Introduction Single nucleotide polymorphisms (SNPs) located of the NOD2/CARD15 gene (nucleotide-binding oligomerization domain containing 2/caspase recruitment domain family, member 15) are associated with increased susceptibility to Crohn's disease (CD). These SNPs are thought to disrupt the sensing of bacterial muramyl dipeptide (MDP) at the C-terminus of the NOD2 protein. The precise contribution of each of these SNPs (SNP5, 8, 12 and 13) to NF-κB activation by means of NOD2-auto-signalling and stimulation with MDP has not been investigated at low levels of NOD2 expression. Data regarding the linkage disequilibrium (LD) between these CD-associated SNPs are scarce.

Methods NOD2 variant constructs (rs2066842 (SNP5), rs2066844 (SNP8), rs2066845 (SNP12) and rs2066847 (SNP13), SNP5+8, SNP5 +12 and SNP5+13) were created by site-directed mutagenesis of a pCMV plasmid containing wild-type N-terminal FLAG-NOD2. NF-κB luciferase assays were performed on HEK293 cells following transient transfection (20 h) with wildtype (WT) and NOD2 variant constructs, titrating NOD2 from 1 to 100 ng/well. The NF-κB luciferase response of NOD2 (1 ng)-transfected HEK293 cells to MDP (10 μg/well) was measured. Two-way ANOVA and unpaired t-tests were used. By means of Haploview-analysis of sequencing data of the exons and exon-intron boundaries in 24 paediatric Caucasian Crohn's disease patients, we assessed the LD between SNP5 and SNP8, 12 and 13.

Results Two-way ANOVA demonstrated an effect of NOD2 genotype and concentration on auto-signalling at low levels of expression (p<0.0001). This was due to the significant difference of auto-activation between WT and SNP5, SNP8 and SNP12 (p<0.001). At low levels of NOD2 expression (1–2 ng), the presence of SNP5 modified the auto-activating potential of SNP12 (p<0.01). Based on these titration experiments, a low NOD2 transfection of 1 ng/well was chosen for the MDP-stimulation experiment. MDP stimulation