Alkaline Results

1 compound (X) was significantly more abundant in pancreatic cancer compared to lung cancer (p=0.020) and also vs controls (p=0.045).

Conclusion This small pilot study is proof of concept indicating that urinary VOCs have potential as biomarkers for pancreatic cancer. 2 compounds (A&B) in pancreatic cancer are raised compared to lung cancer and healthy controls when urine is acidified and another (X) under alkaline conditions, of these 1 compound (A) remains raised after corrections of multiple comparison. Further work is required to develop urinary VOCs as biomarkers for pancreatic cancer.

P253 FIRST UK REAL-WORD DATA ON PATIENTS WITH CARCINOID SYNDROME ON LONG-TERM TELOTRISTAT THERAPY

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Introduction Telotristat ethyl is a tryptophan hydroxylase inhibitor, effective against symptoms of carcinoid syndrome refractory to standard somatostatin analogue therapy by directly inhibiting serotonin production. While clinical trials have established short-term efficacy of the drug, we report the first exploratory study of 15 patients with metastatic neuroendocrine tumours (NET) on long-term telotristat (median duration=8 months). This is a novel EMA-approved treatment, not yet approved by NICE guidelines. Patients received telotristat via a compassionate use programme. The primary outcome of this study was to determine biochemical and symptomatic improvement after initiating telotristat. The secondary outcome was to define the demographic of patients at King's College Hospital typically started on telotristat therapy.

Methods We performed a retrospective chart-review study of 15 patients diagnosed with metastatic small bowel NET with symptoms of carcinoid syndrome. Medical notes and clinic letters were reviewed for patient-reported symptoms, biochemical marker levels and imaging results. Stratified analysis was performed using the Wilcoxon sign-rank test.

Results All 15 patients initiated on telotristat, had a small bowel primary NET with metastatic disease (15 liver, 5 bone, 2 peritoneum). 8 patients had carcinoid heart disease, 7 having had previous valve surgery. 12 patients had completed Peptide Receptor Radionucleotide Therapy prior to initiating telotristat and 4 patients had Selective Internal Radiation Therapy prior to initiating telotristat. All patients were taking somatostatin analogue therapy. All patients showed significant reduction in urinary 5-HIAA (median percentage change 57.14%, p =0.001). There was no significant change in chromogranin A or B. Of the 6 patients taking telotristat for at least 1-year, urinary 5-HIAA still remained significantly lower after 1-year (median percentage change 55.8%, p = 0.028). Moreover, 9 patients reported improvement in diarrhoea, 5 reported improvement in cutaneous flushing, 4 reported weight stability. 4 patients reported side effects including abdominal pain and constipation. Only 2 patients showed progression of disease on imaging during the follow-up period.

Conclusion This is the first UK data on real-world use of this novel agent for carcinoid syndrome. While telotristat is currently only licensed for diarrhoea, patients on long-term telotristat also report improvement in flushing and weight loss, as well as significant persistent improvement in urinary 5-HIAA.

P254 ARE WE STILL MISSING CASES OF PANCREATIC EXOCRINE INSUFFICIENCY AND PANCREATIC ATROPHY IN DIABETES MELLITUS?

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Introduction There is increasing evidence of coexistence of exocrine dysfunction in patients with diabetes mellitus (DM). Patients with pancreatic exocrine insufficiency (PEI) are at risk of malabsorption and malnutrition. In Leeds et al review there was a significant improvement of gastrointestinal symptoms and reduction of frequency of hypoglycaemia when treated with pancreatic enzyme replacement therapy (PERT). Our aim was to study the current practice and yield of PEI in DM patients tested with faecal elastase-1 (FEL-1).

Methods Consecutive recruitment of DM patients attending diabetes outpatient clinic in a tertiary centre. FEL-1 <200µg/g considered PEI. Age, BMI, smoking history, alcohol intake, and duration of disease were collected. Those with PEI were followed up in our gastroenterology clinic.

Results 64 patients with DM were approached. Final analysis included 49 patients (DM1=21, DM2=28) who returned stool sample, median age 62 years, 27male (55.1%). Ten patients (20.4%) had low FEL-1 (DM1=5, DM2=5). Six out of 10 (60%) with low FEL-1 had morphological changes in the pancreas (chronic pancreatitis=1, pancreatic atrophy=5). Most patients did not have GI symptoms (n=8) apart from diarrhoea(n=1) and bloating (n=1). PEI patients had median BMI within overweight category (28.5 kg/m^2) compared to (30.3 kg/m^2) in normal FEL-1 group. Pack-year smoking history was higher in PEI group although didn't reach significance, 20 vs 12.5, p=0.7. There was no difference in duration of disease between the two groups.

Conclusions Majority of our DM patients were asymptomatic however there was high prevalence of PEI and pancreatic atrophy. We expect higher prevalence of PEI in symptomatic DM patients attending gastroenterology clinic. Therefore, increased awareness and prompt screening can improve the diagnosis of PEI. Follow up study will be conducted to assess the impact of treatment on quality of life.

P255 DIETARY NIACIN INTAKE IS INVERSELY ASSOCIATED WITH THE DEVELOPMENT OF GALLSTONES: A PROSPECTIVE COHORT STUDY

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Introduction Dietary niacin may prevent gallstones, a major cause of acute pancreatitis (AP), by increasing plasma high density lipoprotein and lowering triglycerides, both associated

with reduced rates of gallstones. Niacin may interact with other sex-specific risk factors affecting lipids namely hormone replacement therapy (HRT) and parity. This epidemiological study investigated whether dietary niacin reduces the risk of developing symptomatic gallstones (SGs), for the first time using 7-day food diaries (7-DFDs), the most accurate dietary assessment method in large prospective studies.

Methods 25,639 participants (54.7% women), aged 40–74 years, enrolled in the European Prospective Investigation into Cancer-Norfolk (EPIC-Norfolk). At recruitment, participants completed 7-DFDs which recorded 1 week's diet including information on recipes, brands, and portion sizes. Nutrient intakes were calculated using a computer program containing nutrient information on 11,000 foods. The cohort was monitored for 14 years to identify participants developing SGs. Cox proportional hazards regression models estimated the sex-specific hazard ratios (HRs), for SGs for quartiles of niacin intake, adjusted for covariates. Binary analyses were performed using the UK reference nutrient intake (RNI) for niacin, and in sensitivity analyses according to HRT use and parity.

Results SGs developed in 200 women (mean time to diagnosis=6.0 years SD=2.9 years) and 95 men (mean time to diagnosis=5.9 years SD=3.0 years), and 10.3% of diagnoses were AP. In women, total dietary niacin was associated with a reduced risk of SGs (highest vs lowest quartile HR=0.59 95% CI=0.39–0.91; HR trend=0.85 95% CI=0.74–0.98 p=0.022). The population attributable fraction for niacin intake was 16.3%. Eating the UK RNI for niacin was inversely associated with the risk of SGs in parous women (HR=0.63 95% CI=0.45–0.89 p=0.009), but not in nulliparous women (HR=1.65 95% CI=0.45–6.00 p=0.447). Meeting the UK RNI for niacin was inversely associated with the risk of SGs in women who had never used HRT (HR=0.53 95% CI=0.35–0.81 p=0.003), but not in previous or current users. In men, there were no significant associations for niacin (HR trend=0.92 95% CI=0.75–1.13 p=0.430).

Conclusions This data supports a role for dietary deficiencies of niacin in the development of SGs in women, but not men, with effect modification according to HRT use and parity. If further epidemiological studies confirm our findings, then dietary recommendations to increase niacin intake may help prevent the complications of gallstones, including AP.

P256 A REAL WORLD SINGLE CENTRE EXPERIENCE OF SERUM IGG4 TESTING AND CORRELATION WITH CLINICAL OUTCOMES

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Introduction Immunoglobulin G4 related disease (IgG4-RD) is a rare, multi-system, fibroinflammatory condition that is increasingly recognised but proves a significant diagnostic challenge. In recent years more reliable diagnostic criteria based on clinical, biochemical, radiological and histological findings have set out to improve differentiating IgG4-RD from non IgG4-RD. Elevated serum IgG4 is not specific for the disease but is often the first investigation when there is suspicion of IgG4-RD. With the increasing use of serum IgG4, the aim of this study was to assess its real world utilisation and describe the diagnostic approach in those with raised levels in a non-specialist centre.

Methods All measurements of serum IgG4 performed in a district general hospital in South Wales (UK) over 5 years were evaluated. In this retrospective observational study those individuals with raised levels were further analysed to assess demographics, clinical presentation, diagnostics and eventual diagnosis. In those with a diagnosis of IgG4-RD, both treatment and response were reviewed.

Results 655 serum IgG4 measurements were performed on 560 patients. Of the 560 patients, serum IgG4 was raised ($\geq$1.35 gl^{-1}) in 81 (14.5%) and only 13 (2.3%) had a final diagnosis of IgG4-RD. In those with elevated serum IgG4 59 (72.8%) patients were tested for the purpose of differentiating IgG4-RD and non IgG4-RD. The median serum IgG4 in those diagnosed with IgG4-RD was 3.4 gl^{-1}; this was 2.2 gl^{-1} in those with raised levels in non-IgG4-RD. Of the 13 patients diagnosed with IgG4-RD the majority had pancreatobiliary disease; 4 patients with pancreatitis and 3 with sclerosing cholangitis. 11 patients with IgG-RD were treated with corticosteroids at diagnosis with initial clinical response in all. Long term treatment included corticosteroids, azathioprine, methotrexate and mycophenolate with 3 patients on dual therapy.

Conclusion Awareness of IgG4-RD is increasing and serological tests are requested with increasing frequency. However, only a small minority of patients found to have elevated serum IgG4 turn out to have IgG4-RD. The lack of specificity of raised serum IgG4 levels and the variable presentation of disease reinforce the importance of collecting data of patients found to have IgG4-RD. Given that not all cases of IgG4 RD have elevated levels, systematic review and clinical follow up of patients with suspected disease is necessary.

P257 REAL WORLD EXPERIENCE OF THE NEW ACR-EULAR CLASSIFICATION CRITERIA FOR IGG4-RELATED DISEASE

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Introduction IgG4-related hepatopancreatobiliary disease (IgG4-HPB) is part of a complex fibro-inflammatory systemic condition. It is critical to distinguish IgG4-HPB from malignant and inflammatory disease mimics to guide long-term management. The 2019 ACR/EULAR Classification Criteria for IgG4-related disease (IgG4-RD) were developed and validated in a large international cohort and reported to have excellent diagnostic specificity.[1] We sought to evaluate this in real-world clinical practice through our supra-regional Oxford-London IgG4-RD multi-disciplinary meeting (MDM).

Methods We prospectively collected data on 153 patients referred to our IgG4-RD MDM over 4-years with suspected IgG4-RD (Clin Med, Jan 2020 *in press*). Each was classified as definite, possible or not IgG4-RD based on existing diagnostic criteria (HISORt, CDC, Boston Histopathology) and speciality experience. We retrospectively applied the ACR-EULAR classification criteria to this cohort to assess concordance with MDM outcomes.