PWE-107 **OSTEOPOROSIS IN CROHN'S DISEASE PATIENTS EXPRESSING AN AUTOPHAGY-RELATED ATG16L1 GENE VARIANT**

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Introduction Osteoporosis is common in Crohn's disease patients.¹ Autophagy genes have so far never being studied as potential risk factors for osteoporosis in Crohn's disease.

Methods We have analysed the risk for osteoporosis among Crohn's disease patients expressing the rs2241880 polymorphism of the ATG16L1 gene. Patients diagnosed with Crohn's disease through histological, radiological and endoscopic findings were recruited. A blood sample for genotyping was taken and a DEXA Bone Density scan was performed in each patient. Genotyping for this variant involved:

- DNA extraction
- Gradient Polymerase Chain Reaction (PCR)
- Quantitative PCR and High Resolution Melt (HRM)
- Restriction Fragment Length Polymorphism (RFLP) of PCR product

Results 83 Crohn's patients were included in the study. Following genotyping, 33 patients were found to have no mutation (wild type), 44 were heterozygous and 6 were homozygous for the rs2241880 variant of the ATG16L1 gene. The table below shows the mean T and Z scores at the hip and spine of patients with the wild type, heterozygous and homozygous variants.

Patients Homozygous for the rs2241880 variant had lower mean T and Z scores at the hip than those Heterozygous or Wild Type. Using t-test, there was no statistical difference between the Homozygous, Heterozygous and Wild Type patients' hip T scores ($p:0.314$), Z scores ($p:0.441$), and spine T scores ($p:0.751$) and Z scores ($p:0.822$). Using χ^2 test, the relationship between the 3 different variants (homozygous, heterozygous and wild type) and the risk of osteoporosis (T score < -2.5), osteopenia (T score: -1.0 to -2.5) and normal (T score > -1.0) was not statistically significant ($p:0.978$).

Conclusion We found no significant difference between the T and Z scores of patients with ATG16L1 Homozygous, Heterozygous and Wild Type alleles. However, there is a trend in the mean T and Z scores at the hip with lower scores in patients with Heterozygous/Homozygous alleles. Such a trend is not present in the spine. While the authors can offer no explanation for this difference, studies on larger populations are needed to better investigate the relationship between ATG16L1 mutations and the risk of osteoporosis.

Disclosure of Interest None Declared.

REFERENCE

1. Lewis NR, Scott BB. British Society Guidelines for osteoporosis in inflammatory bowel disease and celiac diseases. BSG guidelines in Gastroenterology. June 2007; 1–12.

PWE-108 **ASSESSMENT OF THE MUCOSAL MICROBIOTA IN INFLAMMATORY BOWEL DISEASE**

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Introduction Great progress has been made in understanding the pathophysiology of Crohn's disease (CD) and ulcerative colitis (UC), and it is now widely believed that dysregulation of the relationship between the gut microbiota and the host immune system is central to both diseases. Most published studies to date have focused on assessing the microbiota found in faecal samples, but it is increasingly recognised that this may not be an accurate reflection of what is happening at the mucosal level.

The Aims of this study were to establish a bioresource of IBD patients and controls, and to use this to assess differences in gut microbiota between cases and controls and between different IBD subphenotypes.

Methods Patients undergoing colonoscopy and flexible sigmoidoscopy were recruited to the South East Scotland IBD bioresource. Mucosal biopsies were obtained and snap-frozen using dry ice. DNA was then extracted using a QIAGEN spin column-based method. Blood and serum samples were also biobanked for genetic, epigenetic and metabolomics analysis. Quantitative PCR was used to measure the relative abundance of different bacterial classes compared to the total measured with universal primers. Statistical analysis was done using Mann Whitney U, chi squared and Fisher's exact tests using R 2.15.2.

Results After quality control, results were available from 147 biopsies taken from 84 patients. There were 20 patients with CD, 26 with UC, 2 IBD-U, 20 healthy controls (HC) and 16 with other diagnoses. Median age was 45 years (interquartile range [IQR] 28–50) in the CD group, 51 y (38–63) in the UC group and 39 (30–49) in the HC group. There were no significant differences in age or sex distribution between the CD, UC and HC groups.

There was a statistically significant reduction in CD compared with HC in Ruminococcaceae ($p = 0.002$, figure 1), Lachnospiraceae ($p = 0.046$) and Bacteroides (0.024) and an increase in Enterobacteriaceae ($p = 0.046$). Comparing UC with HC, there was a significant increase in Enterobacteriaceae ($p = 0.025$), but no difference in the other classes. There were no significant differences in any bacterial class between biopsies taken from inflamed and non-inflamed sites in IBD patients.

Conclusion This study confirms reductions in Ruminococcaceae described previously in CD, and increased Enterobacteriaceae in both CD and UC. The presence of paired DNA and serum samples offers the exciting potential to explore the relationship between the gut microbiota, epigenetic and metabolomics changes.

Disclosure of Interest None Declared.

Abstract PWE-107 Table

rs2241880 variant of ATG16L1 (95% Confidence Interval)	T Score, Hip	T Score, Spine	Z Score, Hip	Z Score, Spine
Wild Type (n = 33)	-1.48 (-1.91 - -1.05)	-0.96 (-1.41 - -0.51)	-0.75 (-1.20 - -0.31)	-0.45 (-0.91 - +0.01)
Heterozygous (n = 44)	-1.68 (-2.32 - -1.22)	-0.94 (-1.41 - -0.47)	-0.92 (-1.38 - -0.46)	-0.34 (-0.82 - +0.14)
Homozygous (n = 6)	-1.84 (-2.71 - -0.97)	-0.14 (-1.10 - 0.82)	-0.99 (-1.86 - -0.14)	-0.34 (-0.62 - +1.33)

Abstract PWE-108 Figure 1

PWE-109 MEASUREMENT OF INFLIXIMAB AND ANTI-INFLIXIMAB ANTIBODIES - ANALYTICAL ASPECTS AND CLINICAL IMPLICATIONS

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Introduction Commercial assays for monitoring Infliximab (IFX) and anti-drug antibodies (ADAb) are currently available. The heterogeneity of these assays and lack of standardisation of ADAb may cause difficulties in interpretation, in particular comparing bridging ELISA and radioimmunoassay (RIA). Bridging ELISAs have high specificity but are more prone to inhibition by drug hence may underestimate ADAb, whereas false positive results can be seen with RIA.

Aims Evaluation of (i) the effect of common interferents in the LISA-Tracker Premium ELISA assay (Theradiag). (ii) the inhibitory effect of IFX on the detection of ADAb.

Methods The LISA-Tracker kit was used for the quantitative determination of free drug and ADAb by indirect and bridging assay principles respectively. The measurement range was 0.1 to 5 µg/mL for IFX and 10 to 200 ng/mL for ADAb (> 10 ng/mL considered positive).

Interference studies were carried out using samples with known levels of haemolysis, icterus, rheumatoid factor (RF) and paraprotein (IgG kappa = 17 g/L). All patients had no history of exposure to biologics. Samples were run neat and diluted with samples of known IFX and ADAb concentration to assess recovery.

Samples with known levels of ADAb were spiked with aqueous solutions of IFX (2.4, 1.2 and 0.3 µg/mL) at a ratio of 1:2. Predicted ADAb concentrations were calculated by sample dilution in drug-free diluent.

Results No interference was observed from haemolysis (up to 0.6 g/dL haemoglobin equivalent), icterus (up to 349 µmol/L bilirubin), RF (up to 885 U/mL) and paraprotein as confirmed by recoveries of 93–113% for drug and ADAb.

Spiking experiments

The inhibitory effect of IFX on ADAb detection was observed in both low and high level ADAb samples with ADAb only detectable in sample 2 i.e. as free, not complex form. Comparing expected with measured concentrations of IFX in the spiked samples indicated a difference in recovery between the low and high ADAb positive samples suggesting decreased availability of free IFX in the presence of ADAb.

Conclusion This study shows that the LISA-Tracker kit is not affected by tested interferents. Results from spiking experiments highlight the importance of measuring trough levels and also indicate that the presence of ADAb (detectable or undetectable) can limit the availability of free IFX, leading to sub-therapeutic levels.

LISA-Tracker is a simple, robust assay which has been implemented in our hospital and is routinely used as a personalised approach to prescribing and optimising anti-TNFα therapies in IBD.

Disclosure of Interest None Declared.

PWE-110 ACCEPTANCE AND ADJUSTMENT IN A DISTRICT GENERAL COHORT OF INFLAMMATORY BOWEL DISEASE PATIENTS: FINDINGS AND IMPLICATIONS

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Introduction 'Acceptance' refers to the patient's willingness to engage with their illness. Poor acceptance implies the avoidance or denial of an illness and the accompanying somatic experiences. A lack of acceptance highlights an unwillingness to make the necessary behavioural changes that are required to manage a disease effectively (e.g. missing clinical appointments, medication adherence, bad diet, poor coping strategies). This can have serious ramifications for long-term conditions such as inflammatory bowel disease (IBD).

Objective To assess the prevalence of poor acceptance within our IBD patients.

Methods 2400 patients with IBD in the Luton & Dunstable catchment area were invited to participate in a web-based quality of life assessment, with the option to request a paper copy. Eligibility required patients to be between 18 and 90 years of age, with no serious learning difficulties or pre-existing mental disorders. The 7-item self-report "Acceptance and Adjustment Questionnaire" (AAQ-II; Bond *et al* 2011) was used. AAQ-II scoring ranges from 7 to 49. A bimodal distribution suggested two groups of patients (Good and Poor Acceptance) separated by a cut-off score of 18. Logistic regression was used to identify predictors of acceptance and adjustment.

Results 245 patients completed the assessment (43% male; mean age = 53, SD = 17). Approximately 37% of patients fell in the Poor Acceptance group. Significant predictors of Poor Acceptance were found in Anxiety, Depression, Emotional Illness Perception and Socio-Economic Deprivation. Anxiety levels were scored on a scale from 0 to 21 using the GAD-7. Depression levels were scored on a scale from 0 to 27 using the PHQ-9. Emotional Illness Perception on

Abstract PWE-109 Table

Sample 1				Sample 2		
Expected IFX µg/mL	Measured IFX µg/mL	Expected ADAb ng/mL	Measured ADAb ng/mL	Measured IFX µg/mL	Expected ADAb ng/mL	Measured ADAb ng/mL
1.6	1.9	53	< 10	1.3	176	< 10
0.8	0.7	53	< 10	0.5	176	< 10
0.2	< 0.1	53	< 10	< 0.1	176	12