Conclusions UST appears clinically effective and safe in this cohort of treatment-refractory Crohn's disease patients after 12 weeks of therapy. Future work to combine 'real world' data and to assess longer term outcomes will help us to better understand and place the use of UST in the management of Crohn's disease.

PWE-009 THE ACCURACY OF FAECAL CALPROTECTIN MEASUREMENT FROM STOMA EFFLUENT IN PREDICTING CROHN'S DISEASE ACTIVITY

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Introduction Faecal Calprotectin (FC) is a marker of neutrophil activity, and is sensitive at detecting gastrointestinal inflammation. FC levels >150 µg/g are considered to be associated with a higher risk of endoscopically active inflammatory bowel disease. Meta-analyses report that the sensitivity and specificity at predicting active Crohn's disease (CD) using a cut off FC >50 µg/g is 83%–91% and 47%–53% respectively; for FC >150 µg/g, the sensitivity and specificity is 75% and 71% respectively. Whilst the use of FC from stoma effluent has been studied in the context of predicting allograft rejection after small bowel transplant, its use in IBD has not been assessed, even though many CD patients have stomas. The aim of this study is to assess the accuracy of FC from stoma samples.

Methods Consecutive patients with a stoma and CD were identified from a prospectively maintained clinical database. The FC from stoma effluent was categorised as: FC <50 µg/g, 50–100 µg/g, 100–150 µg/g and >150 µg/g. This was correlated to endoscopic and/or radiologic findings within 3 months of the FC result. An endoscopy was considered abnormal if the Simple Endoscopic Score for Crohn's Disease (SES-CD) was ≥2 as rated by 2 blinded observers on the basis of the endoscopy report/pictures. An MRI or CT was considered abnormal if any evidence of active inflammation was reported.

Results 47 FC results were analysed from 29 CD patients with a stoma (M:F 12:15). 16/29 patients had intestinal failure. 25 samples were from an ileostomy, 18 from a jejunostomy and 4 from a colostomy. 18 patients had one sample, 5 had 2 samples, 3 had 3 samples and 2 patients had 4 samples assessed. The median time between FC and imaging was 40 days (range 2–95); and between FC and endoscopy was 56 days (range 6–91). 29 patients had a CT or MRI, 9 had an endoscopy and 9 had both. Of the 4 colostomy samples: 3 had FC of <150 µg/g and none had evidence of active disease; one had a FC of 1130 µg/g and moderate inflammation of a jejunal segment on endoscopy. Of the 43 ileostomy samples: 29 had FC <150 µg/g, of which 3 had active disease (false negatives).

The sensitivity at FC cut off of 50 µg/g and 150 µg/g was 80% and 73% respectively. The sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) for three FC cut offs are shown in table 1.

Abstract PWE-009 Table 1 The accuracy of FC at predicting small bowel Crohn's disease activity

Stoma FC cut off	Sensitivity	Specificity	PPV	NPV
<50 µg/g	80%	47%	41%	83%
<100 µg/g	80%	78%	63%	89%
<150 µg/g	73%	91%	79%	88%

Conclusion We report that stoma FC has a sensitivity and specificity which is similar to stool FC at all three cut offs. These results suggest that FC is a useful adjunct to clinical assessment and investigations, and a prospective trial in which there is a shorter interval between FC and the diagnostic test is required.

PWE-010 DEFINING INTERLEUKIN-27 EFFECTS ON THE EPITHELIAL BARRIER – A NEW THERAPEUTIC FOR IBD?

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Introduction There is a clinical need for new and safer treatment options for inflammatory bowel disease (IBD). Interleukin-27 (IL-27) is an endogenous immunosuppressive cytokine through inhibition of Th2 and Th17 T cell responses and promotion of IL-10 secreting Tr1 T regulatory cells. Oral IL-27 clinically attenuates disease in several T cell and innate cell driven pre-clinical models of IBD. We need to translate this pre-clinical data to human IBD to underpin proof of concept for IL-27 as a new therapeutic for IBD. Our aim was to define IL-27 evoked responses in the human colonic epithelial barrier.

Methods A human colon derived epithelial organoid model was established from fresh colon tissue obtained through the Grampian Tissue Biorepository. Ethical approval was granted by the Biorepository Scientific Access Group. Isolated colonic crypts were grown in a 3D matrix with conditioned media and growth factors to maturity. RT-qPCR using TaqMan probes characterised organoid permeability gene expression (*CLDN2*, *CLDN4*, *OCN*, *CDH1*, *TJP1*, *ECM1*) normalised to *GAPDH* and *B2M* following a 48 hour stimulation with recombinant IL-27 (rIL-27) (0, 50, 100 ng/ml). Data was analysed with the Livak method and one-way ANOVA. The impact of rIL-27 on colonic epithelial growth dynamics was established on Caco-2 and HT-29 cell lines, stimulated with 0, 50 and 100 ng/ml rIL-27, defined by (1) wound scratch assays over 72 hours with digital images of wound areas captured at 24 hour intervals and analysed with ImageJ software, and (2) tritiated thymidine incorporation proliferation assays stimulated for 48 hours.

Results rIL-27 evoked a differential epithelial permeability gene expression in human colonic organoids, with reduced expression of *CLDN2* ($p < 0.01$) and increased expression of *CLDN4*, *OCN*, *CDH1* and *TJP1* ($p < 0.001$) in a dose-responsive manner. rIL-27 led to an increased rate in epithelial wound restitution ($p < 0.001$). In keeping with this, stimulation with rIL-27

over 48 hours increased the epithelial cell proliferation rate by up to 56% in Caco-2 ($p < 0.01$) and 42% in HT-29 ($p < 0.001$) cells.

Conclusion Our data demonstrates that IL-27 enhances epithelial barrier wound healing. Gene expression data suggests that cell-cell adhesion is enhanced through increased E-cadherin expression, with a reduction in permeability through decreased expression of claudin-2 (pore forming) and increase in claudin-4 (pore closing). Tight junction function is enhanced through increased expression of occludin and tight junctional protein-1. Further studies will define the IL-27 driven permeability related protein expression profile and impact on functional permeability in organoids and whether IL-27 is a potential new treatment for IBD.

PWE-011 THE PSYCHOSOCIAL EFFECTS OF INFLAMMATORY BOWEL DISEASE ON REPRODUCTIVE HEALTH – A SYSTEMATIC LITERATURE REVIEW

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Introduction Inflammatory bowel disease (IBD) is a chronic condition that can affect patients during their reproductive years. Previous studies report that IBD patients have high levels of pregnancy-related fears and voluntary childlessness. The aim of this project is to perform a literature review on the psychosocial effects of IBD on patient's reproductive health and investigate factors affecting family planning decisions.

Method Six electronic databases (CINAHL, PsycInfo, EMBASE, Pubmed, Web of Science, Sciondirect) were searched using a broad search strategy. Studies using qualitative, quantitative and mixed methods designs were eligible.

Results Using Prisma-P, a total of 3600 records were identified through electronic databases, hand searching and contacting authors. After removing duplicates, 1806 titles were screened and 241 abstracts were reviewed. Of these, 79 full text articles were screened and 41 articles have been included. The studies design included cross-sectional surveys, qualitative, mixed methods and non-randomised controlled intervention studies. Synthesis of the data revealed that sexual dysfunction after surgery, specifically ileal pouch–anal anastomosis, is common for female patients. A small minority of female IBD patients do not use contraception and are at 'risk' for pregnancy. Knowledge regarding the effects of IBD on pregnancy and fertility is consistently poor and poor knowledge is associated with voluntary childlessness. Many patients report pregnancy-related fears and anxieties including concerns that IBD or medications may harm the baby or lead to a complicated pregnancy. Patients feared transmission of IBD to their offspring, which may lead to voluntary childlessness. Strategies to improve pregnancy and fertility knowledge (e.g., pre-conception counselling) are successful in reducing pregnancy-related anxieties. However, provisions of pre-conception counselling tend to be limited. The literature in this field is associated with a number of limitations including (a) small sample sizes; (b) low response rate for surveys; (c) the use of unstandardised and non-validated questionnaires; (d) few studies have

included male samples and ethnic minority groups; and (e) lack of qualitative enquiry and longitudinal follow-up of patients.

Conclusion The literature indicates that some patients with IBD experience sexual dysfunction, poor fertility and pregnancy-related knowledge, high levels of pregnancy-related fears, concerns and voluntary childlessness. Intervention to improve knowledge tends to be successful. This review has identified several psychosocial effects of IBD on reproductive health which need further investigation.

PWE-012 SMALL BOWEL ULTRASOUND IN CROHN'S DISEASE-OUTCOMES IN A DISTRICT GENERAL HOSPITAL

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Introduction The joint ECCO and ESGAR evidence-based consensus guidelines for imaging techniques for inflammatory bowel disease IBD assessment recommends ultrasound (US) as one of the first-line tests for the investigation of Crohn's Disease (CD). It is inexpensive, free of ionising-radiation and well tolerated. We looked at outcomes in SB US in our CD population.

Methods Retrospective analysis of SB US for patients with known or suspected CD between June 2016 to February 2017 in Frimley Park Hospital. Data was collected from PACS, clinic letters and endoscopy reports.

Result 91 US scans in a total of 83 patients were performed by a single, dedicated GI radiologist (6 patients had more than one US). Patient age range 7–80 years (median 29 years); 53 female (64%), 30 male (36%).

21/91 (23%) US were performed for assessment of symptomatic flare in those with established CD. 16/21 (76%) had active disease on US (81% terminal ileitis; 6.3% stricture, 6.3% fistula, 6.3% abscess). Of these, 4 had MRE and 2 had colonoscopy which correlated with US findings. 11/16 (69%) had treatment escalation following US (55% started anti-TNF, 18% steroids, 9% Vedolizumab, 9% enteral, 9% surgery). US was the sole investigation prior to treatment escalation in 7 these patients (64%).

24/91 (26%) US were performed in established CD patients to aid treatment decisions; 4 after recent steroid course (all started disease modifying treatment), 8 to assess patients on biologics, 2 to evaluate starting biologics, 6 to evaluate previous abnormal/inconclusive CT/MRI or colonoscopy, 2 periprocedurally, 1 for discordant symptoms and imaging; 1 for abnormal biochemistry.

6 US were undertaken after failure of terminal ileum intubation for established CD. 4/6 (67%) detected terminal ileitis and treatment subsequently escalated (1 started methotrexate, 1 anti-TNF, 1 Vedolizumab, 1 prednisolone).

46/91 (51%) US were performed for suspected CD. 11/46 (24%) showed active inflammation. 8 were ultimately diagnosed with CD. In this group, 2 had MRE, 3 had colonoscopy and 3 had both, all correlating with US findings. 35/46 (76%) did not show active inflammation but reported incidental findings including malignancy and gallstones.

Conclusion This study demonstrates the useful role of SB US in the management of CD. Our results show that US led to changes in treatment including management of acute flares,