

**Competing interests** None declared.

## REFERENCES

1. *European Evidence-Based Consensus on the Prevention, Diagnosis and Management of Opportunistic Infections in IBD, ECCO Guidelines*. 2009.
2. **Garrett Lawlor MD**, Alan C, Moss MD. CMV in IBD: Pathogen or innocent bystander? *Inflamm Bowel Dis* 2010;**16**:1620–7.

### PWE-228 AN ASSESSMENT OF THE IMPACT 5ASA DOSE, DOSE INTERVAL, PREPARATION AND DELIVERY HAVE ON MAINTAINING REMISSION IN ULCERATIVE COLITIS

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**Introduction** 5-Aminosalicylic Acid (5ASA) plays a key role in both induction and maintenance of remission in ulcerative colitis (UC). A number of questions remain poorly assessed by clinical trials including the role of dose, dose interval, preparation and delivery method in maintaining remission. We aimed to assess the value of preparation, dose, delivery method and dosing interval on the duration of first remission in patients with newly diagnosed UC.

**Methods** We retrospectively assessed an inception cohort of 100 newly diagnosed UC patients diagnosed between 2004 and 2008 and followed-up for 3 years. 69 patients took oral Pentasa and 11 took oral Asacol. The diagnosis adhered to the criteria of Lennard-Jones and clinical details were categorised according to the Montréal classification. Data were also collected on 5ASA maintenance drug (Asacol or Pentasa), dose (high dose or low dose), and delivery (oral or oral and rectal). Relapse was defined as an increase in symptoms needing an increase in anti-inflammatory therapy. Risk of relapse was evaluated using HR, and by using Cox regression to control for potential confounders.

**Results** From induction of remission to the end of our 3 yr follow-up, 76% of patients relapsed, with a mean time to relapse of 16 months. Mean daily dose taken of Asacol was 2.3 g/day (IQR 0 g/day) and Pentasa 2.4 g/day (IQR 2–3 g/day). We found no significant difference in the relapse rates between Asacol and Pentasa. (Relapse rate 7/11 Asacol vs 53/69 Pentasa,  $c^2=0.574$ , HR 1.78 ( $p=0.19$ )). We also found no significant difference between: relapse rates for patients taking high dose 5ASA vs low dose. (Relapse rate 9/10 high dose vs 42/58 low dose,  $c^2=0.114$  HR 0.505 ( $p=0.223$ )); Oral and rectal vs oral alone (Relapse rate 10/12oral + rectal vs 59/77 oral,  $c^2=0.374$ , HR 0.49 ( $p=0.09$ )); Twice daily and once daily (Relapse rate 44/60 TD vs 5/6 OD,  $c^2=0.306$ , HR 2.12 ( $p=0.43$ )), and three times daily compared with twice daily (Relapse rate 20/23 TD vs 44/60 BD,  $c^2=0.107$ , HR 0.82 ( $p=0.6$ )).

**Conclusion** The duration of first remission in UC is variable and although 5ASA are effective the majority of patients will relapse within 3 years. These data demonstrate that relapse is influenced relatively little by high dose or bi-directional therapies and there were no differences in the preparations studied. This would indicate that concordance with therapy is a vital aspect of 5ASA efficacy and clinicians should reinforce this point when discussing therapy.

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### PWE-229 ASSESSING PATIENT REPORTED OUTCOME IN CROHN'S DISEASE

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**Introduction** Research into the impact of Crohn's Disease (CD) and its treatment on the patient relies on outdated and inappropriate

generic questionnaires. These do not address important impacts of the illness and ask questions of limited relevance. As part of a study to develop CD-specific patient-reported outcome measures (PROMS), qualitative interviews were conducted with CD patients.

**Methods** Item generation was based on the International Classification of Functioning, Disability and Health (ICF) and the needs-based quality of life (QoL) models. Interviewees were recruited via out-patient clinics and interviewed in a private room or at the researcher's offices. Interviews covered all aspects of the impact of CD and its treatment and were audio-recorded. Transcripts were content analysed to identify impacts on symptoms, activity limitations and QoL.

**Results** 26 patients (69.2% female; aged 25–68; mean (SD): 46.2 (14.7) years) were interviewed. Participants had a wide range of duration of CD (2–40; mean (SD): 13.0 (12.9) years). 2641 statements relating to the impact of CD were identified. These statements fell into three major categories with a number of sub-themes identified: Symptoms (such as pain, fatigue and emotional impairment), activity limitations (such as difficulties with walking, lifting and jobs around the house) and QoL (including preoccupation with the disease, self-conscious of appearance and reduced socialisation).

**Conclusion** The study was successful in identifying the most important impacts of CD from the patients' perspective. In addition to generating potential items for the new measure the findings of the interviews have implications for clinical practice and clinical trial design. Audit of services and assessment of new interventions for CD should assess whether or not these impacts of CD are improved. Only then will it be possible to determine whether interventions are of true benefit to the patient.

**Competing interests** None declared.

### PWE-230 AN IRON-RESPONSIVE PROBIOTIC TO TREAT INFLAMMATORY BOWEL DISEASE

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**Introduction** Iron is an essential cofactor in most biological systems. Lactic acid bacteria (LAB), frequently employed as probiotics, are unusual in having little or no requirement for iron. In the intestine of inflammatory bowel disease (IBD) patients increased availability of iron following oral iron supplementation or intestinal bleeding enhances growth and virulence of many pathogens against which LAB cannot compete. We have previously identified an iron-responsive LAB, *Sreptococcus thermophilus* NCIMB 41856, with probiotic potential based on functionality in in vitro models which could be competitive during active disease. In order for this strain to be used as a probiotic treatment in IBD patients it must be safe, able to survive gastrointestinal transit and preferentially adhere to epithelial cells and colonise.

**Methods** Adhesion to the human epithelial cell lines, T84 and Caco-2, was investigated and the ability of *S thermophilus* NCIMB 41856 to abrogate binding of potential pathogens, in particular adherent-invasive *Escherichia coli* examined in vitro. The strain was also subjected to in vitro safety tests which included the production of ammonia, indole, phenols, amines, hydrogen peroxide and D-lactate. Antibiotic resistance was examined, including detection of transmissible antibiotic resistance. Ability to survive within a low pH environment was determined, as was enzyme activity and metabolism of carbohydrates.

**Results** The strain was found to be capable of binding to epithelial cells and reduce the binding of potential pathogens, while not causing cellular damage itself. It produced no harmful metabolites

and no transmissible antibiotic resistance was detected. It has inherent acid resistance and is able to tolerate pH2 with a survival rate of 20%, increasing to 76% at pH3. It is able to metabolise a range of carbohydrates, including lactose, glucose, sucrose, fructose, mannose, ribose, raffinose and N acetyl glucosamine.

**Conclusion** Our candidate probiotic, *S thermophilus* NCIMB 41856 has properties that would enable it to survive in and colonise the human intestine. It can survive gastric levels of acidity, utilise a range of carbohydrates present in the intestine, and is able to bind to epithelial cells. It is also able to prevent the binding of potential pathogens. Furthermore, it does not possess undesirable antibiotic resistance or produce harmful metabolic products. These features indicate that it would be safe and potentially effective in use as a probiotic. We propose to test this in vivo in future work.

**Competing interests** None declared.

### PWE-231 MRI IS CORRELATED TO FAECAL CALPROTECTIN LEVEL IN THE EVALUATION OF SMALL BOWEL AND COLONIC CROHN'S DISEASE

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**Introduction** Crohn's disease management requires knowledge of overall disease burden. A new MRI score of Crohn's disease activity was tested against reference standards of global activity—Harvey Bradshaw index (HBI) and faecal calprotectin.

**Methods** 34 patients (15 male) median age 33 (range 17–78) with known or suspected Crohn's disease underwent MR enterography (axial/coronal HASTE, TrueFisp and post gadolinium coronal VIBE/THRIVE at 1.5T (n=24) or 3T (n=10)). Same day HBI questionnaire and faecal calprotectin were measured. Two observers qualitatively graded bowel wall thickness, mural T2 signal, mesenteric oedema, T1 enhancement and colonic haustral loss from 0 (normal) to 3 (most abnormal) for the jejunum, proximal ileum, terminal ileum and colon (six segments). Each individual small bowel and colonic segmental score was multiplied according to the length of disease in that segment (0–5 cm×1, 6–15 cm×1.5, and ≥16 cm×2). For each of: lymphadenopathy, comb sign, abscesses and fistulae a score of 5 was added if present. The relationship between MRI score, calprotectin and HBI was evaluated using Kendall's rank correlation.

**Results** The mean MRI activity score was 15 (range 0–61.5) and was significantly correlated with calprotectin, Kendall's tau b=0.42, p=0.0009, but not with HBI, Kendall's tau b=0.006, p=1.

**Conclusion** Global Crohn's disease activity measured using a qualitative MRI score is correlated to the faecal calprotectin level. MRI is useful for the global assessment of Crohn's disease activity.

**Competing interests** None declared.

### PWE-232 ADAMDEC1: A NOVEL MOLECULE IN INFLAMMATION AND BOWEL DISEASE

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**Introduction** Innate immunity is attenuated in patients with Crohn's disease (CD) with impaired neutrophil recruitment to skin and bowel, delayed clearance of *Escherichia coli* from the skin, and

impaired secretion of pro-inflammatory cytokines from macrophages (Marks *et al*, 2006; Smith *et al*, 2009). The primary defect of acute inflammation results in failure to eradicate bacterial flora entering the bowel wall leading to the chronic granulomatous inflammation characteristic of CD. Microarray analysis of peripheral blood monocyte derived macrophage mRNA expression, confirmed by qPCR, revealed that ADAMDEC1 (ADAM like Decysin1) was under-expressed in 10% (6/60) of CD patients. ADAMDEC1, a Metalloprotease and Decysin, is part of a family of proteins involved in wound healing and tissue repair, and is almost exclusively expressed in macrophages, dendritic cells and the gastrointestinal tract. To determine the role of this protein we examined *E coli* induced inflammation and Dextran Sodium Sulphate (DSS) colitis in the Adamdec1 knockout (KO) mouse.

**Methods** In an acute colitis model, Adamdec1 KO mice were exposed to 2% DSS for 7 days. Controls, wild type (WT) litter mates, were age, weight and sex matched (n=11 per group). Clinical colitis scores (weight loss, PR blood, loose stool) were recorded daily. Histology was obtained from small and large bowels. For bacterial inflammation, 5×10<sup>8</sup> heat killed *E coli* (HkEc) were injected subcutaneously (SC) into two sites on the backs of KO and WT mice (n=8 per group). Mice were weighed, injection sites inspected for ulceration and subcutaneous inflammatory nodules measured, daily. Injection sites were excised at different time points for histology and identification of infiltrating cells by FACS.

**Results** Adamdec1 KO mice were more susceptible to DSS colitis. They demonstrated higher clinical colitis scores with an earlier and more dramatic weight loss (p<0.001). A more florid inflammatory response was seen on histology. In response to a subcutaneous injection of *E coli*, Adamdec1 KO mice had significantly smaller inflammatory nodules and less ulceration at the injection sites after 48–72 h, compared with WT mice (p<0.001).

**Conclusion** Mice lacking Adamdec1 develop a phenotype that closely mirrors that observed in patients with CD, an attenuated and delayed *E coli* induced acute inflammatory and an increased susceptibility to bowel inflammation. These results suggest ADAMDEC1 plays an important role in the acute inflammatory response to bacteria and has a protective role within the intestine, reduced levels may have a pivotal role in the development and persistence of CD.

**Competing interests** None declared.

### PWE-233 SINGLE CENTRE COMPARISON OF MORTALITY, HOSPITAL RECORDED SERIOUS ADVERSE EVENTS (SAE) AND PRIMARY CARE RECORDED OPPORTUNISTIC INFECTIONS (OI) IN IBD PATIENTS TREATED WITH ANTI-TNF COMPARED TO THIOPURINES ALONE

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**Introduction** The safety profile of anti-TNF therapy in IBD has been examined in previous case series, however these have been in tertiary centres, have not included a control cohort, or review of primary care records. We aimed to review SAE including primary care recorded OI, in patients treated with anti-TNF compared to a thiopurine alone.

**Methods** We studied two IBD cohorts: Cohort 1—All 212 anti-TNF treated patients between 1999 and 2010. Cohort 2—220 responders to an invitation sent to 365 patients treated with thiopurines only. A review of primary and secondary care records was conducted. A primary care OI was defined as any infection diagnosed or treated in primary care. Statistical analysis was performed using Stata V.12