Dietary nutrients can modulate mucosal immune responses, certain nutrients via epithelial EEC signalling pathways and others via direct effects on lamina propria.

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ADWE-06 IMPACT OF THE NORTH AMERICAN CONSENSUS ON HYDROGEN AND METHANE BREATH TESTING FOR SIBO

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Introduction The North American Consensus (NAC) document on breath testing published in 2017 was a first attempt to standardise the diagnostic test for small intestinal bacterial overgrowth (SIBO), including two key recommendations in terms of substrate dosing. The recommended use of 10 g lactulose and 75 g glucose differed from many practices in the UK which used 16 g of lactulose and 50 g of glucose previously, therefore we adopted these new dosing parameters and retrospectively compared these data to those acquired in the previous 3 months.

Methods Data from 536 patients were analysed and distinguished into subgroups dependent on substrate-10 g lactulose (n=200), 16 g lactulose (n=200), 75 g glucose (n=82) and 50 g glucose (n=54). Unpaired t-tests were used to determine statistical significance of the results.

Results Patients in the higher dose groups for glucose and lactulose had significantly more SIBO positive results (as determined by a rise >10 ppm above baseline in hydrogen in 60 min post ingestion) than those in the lower dose groups (lactulose p=0.0279, glucose p=0.0427). There was no significant difference in methane between groups (p>0.05 for both).

The change in glucose and lactulose dose did not have any significant effect on number of patients recording symptoms throughout the test (bloating, nausea or abdominal pain) (p>0.05 for both), however recorded severity of bloating was significantly higher in patients administered 16 g lactulose than those administered 10 g (p=0.0415).

With the 10 g lactulose dose, patients with a positive SIBO test experienced significantly more bloating and nausea than negative patients (bloating p=0.0467, nausea p=0.0327), but this difference was not observed in the 16 g lactulose group (p>0.05 for both). Symptoms were equivalent in the glucose groups.

Conclusions Glucose (75 g) yields a higher proportion of positive results for SIBO than 50 g without an increase in symptoms. As glucose is absorbed in the proximal small bowel these are likely to be true positives.

16 g of lactulose yielded significantly more positive results than 10 g, but as higher lactulose doses have been shown to reduce intestinal transit time it is possible that these may represent false positive test for SIBO. This is supported by the fact that 16 g of lactulose induced equivalent symptoms in SIBO positive and negative patients whereas 10 g only increased symptoms in SIBO positive patients.

These findings broadly support the parameters outlined in the NAC document for SIBO testing.

ADWE-07 HOW MANY CAPSULE ENDOSCOPY CASES CAN BE READ BEFORE ACCURACY IS AFFECTED?

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Introduction The interpretation of Small Bowel Capsule Endoscopy (SBCE) requires a high level of concentration. An abnormality may be present on just a few of the many thousands of images presented for interpretation. It is unknown whether fatigue affects the accuracy of SBCE reporting or how many SBCE can be read in one session.

Methods 32 participants (16 Experienced readers and 16 Novices) were invited to participate in this study. Each was asked to read 6 consecutive pre-selected SBCE cases, these were presented in a random order. All readings took place using the single view mode, with readers able to choose the frames per second viewed from a pre-defined range. Fatigue was measured subjectively using a Likert scale and objectively using a computer based Psychomotor Vigilance Test (PVT). These measures were performed at prior to commencing the study and after every second capsule read. Accuracy in lesion detection was determined by comparison with a gold standard reading, derived from the non-consecutive readings of two experienced readers. Accuracy was plotted against reading order.

Results In keeping with published data, high intra-observer variability amongst the participants was observed. Experienced readers demonstrated a mean correct detection rate of 48.3% (SD:16.1), compared to 21.3% (SD:15.1) amongst Novices. The accuracy of Experienced readers declined after interpreting just a single SBCE case (p=0.01) and plateaued thereafter. Novice readers demonstrated no significant change across time points, with a trend towards improvement, perhaps indicating skill acquisition during the study. The mean reading time to read a single SBCE case was 32 mins. When analysed with respect to reading order a statistically significant reduction in reading time was observed (p=0.05). Reading times were on average 25% faster when reading Case 6 compared to Case 1, representing a mean reduction of 9 mins and 36 secs (range 9–11 mins). Reading at higher frame rates was associated with a reduction in accuracy, which was most pronounced amongst Novice readers. No significant relationship between subjective fatigue or PVT and correct lesion detection was demonstrated. **Conclusions** This is the first study to demonstrate that accuracy in SBCE declines after reading a single capsule study. This phenomenon should be considered when reading high risk cases or when a SBCE case has been reported as normal, despite high clinical suspicion.

ADWE-08 FACTORS INFLUENCING PARENTERAL NUTRITION AND GLUCOGAN LIKE PEPTIDE-2 ANALOGUE SUITABILITY IN TYPE THREE INTESTINAL FAILURE

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Introduction Short bowel syndrome (SBS) is a leading cause of intestinal failure (IF) and the need for long term home parenteral nutrition (HPN). Understanding the anatomical features and nutritional requirements of this sub set of patients within

any HPN cohort is vital, given the associated risk of HPN related complications. Moreover, with developments in surgical lengthening and potential for emerging pharmacological interventions, appropriate patient selection is key. However, there may be regional and national differences between different SBS-IF patient populations; this study therefore aimed to develop a greater contemporary understanding of the SBS-IF subset managed within a large U. K. HPN cohort.

Method We performed a retrospective observational study from a prospectively maintained database, evaluating patients with type 3 IF managed in a national U. K. centre. Patients' intestinal anatomical details were reviewed and PN requirements evaluated according to the novel ESPEN classification for type 3 IF. Each individual SBS case was evaluated to assess eligibility for GLP-2 analogue therapy according to recently published inclusion criteria

Results A total of 273 patients were included in the HPN database as of October 2017. One hundred and fifty two patients (55.7%; mean age of 56.9 years) were identified as having IF as a result of SBS (SBS-IF), with the presence of a jejunostomy (SBS-J; 41.8%) as the most frequent pathophysiological mechanism. Only 7.3% of patients with SBS-IF had colon in continuity. Crohn's disease was the most common underlying aetiology leading to SBS-IF. The mean duration of HPN was 60.8 months (range: 4–415.8). Univariate analysis for the whole HPN cohort demonstrated SBS-IF and a longer duration of HPN to be associated with higher PN energy requirements, $p \leq 0.0001$. Seventy three (48.0%) patients with SBS-IF were deemed suitable for treatment with a GLP-2 analogue, with co-morbidity being the most frequent cause of non-suitability.

Conclusion This is the largest UK HPN cohort individually reported using ESPEN pathophysiological and clinical severity classification. The vast majority of patients with SBS-IF have a jejunostomy and, as compared to other international cohorts, relatively few have colon-in-continuity. The study further demonstrates that existing co-morbidity is a principal contra-indication to therapy with GLP-2 analogue therapy in a majority of patients with SBS-IF; these data will be useful for funding bodies to consider when planning reimbursement costs for novel therapies within limited national healthcare budgets.

ADWE-09 LOW FODMAP DIET IMPROVES FUNCTIONAL-LIKE GASTROINTESTINAL SYMPTOMS BUT REDUCES BIFIDOBACTERIA IN QUIESCENT INFLAMMATORY BOWEL DISEASE

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Introduction Many patients with quiescent inflammatory bowel disease (IBD) also experience functional-like GI symptoms. The low FODMAP diet improves GI symptoms in quiescent IBD in uncontrolled trials but there are no placebo-controlled trials to confirm this. We performed a randomised, placebo-controlled trial to assess the effects of a low FODMAP diet on GI symptoms, microbiota, inflammatory markers and circulating gut-tropic ($\alpha 4\beta 7+$) T-cells in patients with quiescent IBD.

Methods Patients with Crohn's disease (CD) or ulcerative colitis (UC) were included. Quiescent IBD was defined as: 1) Physician Global Assessment, 2) faecal calprotectin [FC] $< 250 \mu\text{g/g}$ and 3) CRP $< 10 \text{ mg/L}$. Suitable patients fulfilled the Rome III criteria for IBS, functional bloating or functional diarrhoea, and were naïve to the low FODMAP diet. Participants were randomised to low FODMAP or placebo (sham) dietary advice for 4 weeks. At baseline and end of trial, GI symptoms and stool output were measured using validated questionnaires. Faecal microbiota were characterised using metagenomic sequencing and $\alpha 4\beta 7+$ T cell populations quantified using flow cytometry. End of trial data were compared intention to treat between the diets using analysis of covariance adjusting for baseline values.

Results Fifty two patients were randomised (27 low FODMAP diet, 25 sham diet). At the end of trial, more patients reported adequate relief of GI symptoms following the low FODMAP diet (14/27, 52%) than the sham diet (4/25, 16%) ($p=0.007$). Total IBS Severity Scoring System score decreased by 67 points (SD 78) during the low FODMAP diet and 34 points (SD 50) during the sham diet ($p=0.075$). Daily stool frequency was lower following low FODMAP diet (1.7 SD 0.5) than sham diet (2.1 SD 0.5) ($p=0.012$). Bacterial gene richness was not different between the groups at end of trial ($p=0.620$). Relative abundance of *Bifidobacterium longum* (1.24×10^{-7} vs 6.95×10^{-7} , $p=0.003$) and *B. adolescentis* (1.99×10^{-7} vs 2.55×10^{-6} , $p=0.015$) was lower following low FODMAP diet compared to sham diet. Between baseline and end of trial, *Faecalibacterium prausnitzii* SL3/3 M21/2 (2.30×10^{-6} vs 1.52×10^{-6} , $p=0.029$) and *F. prausnitzii* KLE1255 (4.49×10^{-6} vs 2.68×10^{-6} , $p=0.006$) declined in the low FODMAP diet group. There was no difference in proportions of $\alpha 4\beta 7+$ T cells between groups at end of trial.

Conclusions The low FODMAP diet improved functional-like GI symptoms in patients with quiescent IBD but reduces immunoregulatory species of the intestinal microbiota, though does not impact on inflammatory markers or $\alpha 4\beta 7+$ blood T-cell numbers.

PWE-095 WHAT IS THE ROLE OF CAPSULE ENDOSCOPY IN EVALUATING PATIENTS WITH REFRACTORY COELIAC DISEASE?

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Introduction Small bowel capsule endoscopy (SBCE) is used in refractory coeliac disease (RCD) to assess the extent of disease and ensure there are no complications (lymphoma or ulcerative jejunitis). However there are no published reports on SBCE in RCD following immunosuppressive therapy.

Methods Patients with histologically confirmed refractory coeliac disease (RCD) who underwent a SBCE at baseline and after treatment were enrolled in this study. These were compared to a group of control CD patients with no underlying RCD.

Results 19 patients (median 53 years) with RCD (12 patients; 63.2% – type 1) were compared to 28 patients with control CD (median 48 years). There was no statistically significant difference in duration of disease, gender, age at SBCE and serology between the 2 groups.