PWE-007 UPTAKE OF THE BOWEL CANCER SCREENING PROGRAMME IN THE EASTERN REGION OF ENGLAND: TRENDS BY AGE AND GENDER

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Introduction Bowel cancer is more common in men than women with age-adjusted incidence in the UK being over 50%% higher in men and mortality 63% higher. However uptake of the Bowel Cancer Screening Programme in England (BCSP) has been generally about 5% lower in men[1]. We have examined whether with increasing familiarity with the BCSP there have been changes in uptake of screening invitations over the past 4 –5 years.

Methods Analysis of uptake of screening invitations by sex and 2 year age bands of people invited for screening by the Eastern Hub which covers the East of England and East Midlands (total population 10.6 million) between 1 Jan 2008 and 30 June 2012 by 6 month periods.

Results Over the 4.5 years > 2.8 million invitations were sent by the Eastern Hub. For those aged 60–61 years uptake by men was 9–10% lower than that by women (uptake 60%) with no evidence of any change over the 4 years. In women uptake remained over 60% for the 62–63, 64–65 and 66–67 age bands with a small increase over time reaching 65% in 2012. In men uptake showed a steady increase with age such that by age 68–69 uptake was only 2–3% lower than in women. For those aged 70–71 uptake in men and women was generally similar and for those aged 72–73 and those aged 74 uptake was around 2% higher in men than women. This was partly accounted for by a decline in uptake in women to below 60%. Analysis of time trends in those over 70 was unreliable because of only partial roll-out ('age extension') of the BCSP to this group in the Eastern region.

Conclusion While the small decline in uptake in women > 70 years is a concern the increasing uptake in men with age is encouraging and suggests that the introduction of simpler screening approaches using faecal immunochemical tests will see substantial increses in uptake of the BCSP[2].

Disclosure of Interest None Declared.

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PWE-008 PLACIDE: PROBIOTICS IN THE PREVENTION OF ANTIBIOTIC ASSOCIATED DIARRHOEA (AAD) AND CLOSTRIDIUM DIFFICILE ASSOCIATED DIARRHOEA (CDD) IN ELDERLY PATIENTS ADMITTED TO HOSPITAL – RESULTS OF A LARGE MULTI-CENTRE RCT IN THE UK

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Introduction Antibiotic associated diarrhoea (AAD) and *Clostridium difficile* associated diarrhoea (CDD) occur in 5–39% of pts exposed to antibiotics. Despite previous papers proposing a beneficial role of probiotics, there has been no large randomised controlled trial evaluating their preventative effect.

Methods This large RCT funded by the HTA was aimed at finding the efficacy and cost-effectiveness of a high dose, multi-strain probiotic for prevention of AAD and CDD in older people admitted to hospital. Pts aged > 65yrs, exposed to one or more oral/parenteral antibiotics without pre-existing diarrhoea, recent CDD or risk of probiotic adverse effects were eligible. Of 17,420 patients screened, 2,981(17.1%)were recruited and allocated sequentially by a computer-generated random allocation sequence stratified by centre. 1,493(50.1%)were allocated to probiotic and 1,488(49.9%)to placebo arm. Two strains of lactobacilli and two strains of bifidobacteria with a total of $6x10^{10}$ organisms/day were taken as a daily single capsule for 21 days. The placebo was inert maltodextrin powder. Occurrence of AAD or CDD within 12 weeks of recruitment was assessed by research nurses, blinded to arm allocation.

Results ITT analysis included 2,941(98.7%)participants. Potential risk factors for antibiotic-associated diarrhoea at baseline were similar in both arms. The frequency of AAD was similar in the probiotic (159/1470, 10.8%)and placebo arms (153/1471, 10.4%), RR: 1.04; 95%CI0.84–1.28; P = 0.72.CDD was an uncommon cause of AAD and occurred in 12/1470(0.8%)participants in the probiotic and 17/1471(1.2%)in the placebo arm (RR 0.71; 95%CI0.34–1.47; P = 0.35).Adverse events and other outcomes were similar in both arms. Total health care costs per patient did not differ significantly between probiotics (£8020.11; 95%CI£7622.31-£8417.90) and placebo (£8011.37; 95%CI£7600.53-£8422.22).The incremental cost-effectiveness ratio of £45,636/QALY was robust to changes in key parameters.

Conclusion This study found no evidence that probiotic administration was effective in the elderly in preventing AAD, although there was a trend towards reduced CDD in the probiotic arm.

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PWE-009 CAECAL PH MEASUREMENT IS AN OBJECTIVE BIOMARKER OF EXCESSIVE FERMENTATION IN PATIENTS WITH BLOATING AND DISTENSION

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Introduction Fermentation of undigested carbohydrates by the colonic microbiota is an important part of maintaining a healthy colonic environment. However, excessive fermentation is thought to play a role in exacerbating symptoms of bloating, distension, pain and alternating bowel habit. By-products of the fermentation process include short chain fatty acids (SCFA's) which reduce caecal pH. Measurement of caecal pH therefore provides an opportunity to objectively quantify aspects of fermentation but has been technically challenging to achieve. In this retrospective study, we compared intestinal pH and pressure profiles using an ingestible wireless motility capsule (WMC) (SmartPill, Buffalo, US) in healthy controls and patients with symptoms of bloating, distension, pain and alternating bowel habit.

Methods Motility and pH data were reviewed from 16 healthy controls (Cx) and 16 age and sex matched patients (Px) that had undergone the WMC study using a standardised protocol. Motility

measures (area under curve (AUC)) were anchored around known anatomical landmarks as identified by compartmental pH changes. 60-minute epochs were used to quantify antral, duodenal, ileal, caecal and distal colonic contractility. The maximum and minimum pH was measured either side of the ileo-caecal junction. All data are presented as means (±95% CI).

Results No differences were seen in any of the motility parameters, compartmental transit times or maximal ileal pH between the two groups. Minimum caecal pH was significantly lower in patients compared to control (Px = 5.14 ± 0.14 v Cx = 6.12 ± 0.16, p < 0.0001). The 95% CI for maximum pH drop across the ICJ in health was 1.65 units. There was a significant correlation between caecal pH and caecal contractility (r = 0.498, p = 0.05).

Conclusion In this study, we have shown that patients with lower abdominal symptoms typically associated with, but not limited to, conditions such as irritable bowel syndrome (IBS) have a significantly lower caecal pH compared to controls. This low pH environment is maintained by fermentation and subsequent SCFA production. SCFA have been shown to inhibit colonic motility in-vitro and contractility as measured by the WMC was correlated with caecal pH. With the recent success of anti-biotic therapy and low fermentable diets in the treatment of lower bowel symptoms in IBS, measurement of caecal pH using the WMC provides an objective and quantifiable biomarker of fermentation. This may be used to sub-classify patients with a broad spectrum of GI disorders and identify those that may benefit most from antibiotic, probiotic and dietary interventions providing novel insights into the pathophysiological mechanisms of lower GI symptoms.

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PWE-010 BIOFEEDBACK-A SIMPLE AND EFFECTIVE WAY OF MANAGING RECTAL EVACUATORY DYSFUNCTION SECONDARY TO PELVIC FLOOR DYSSYNERGIA AND RECTAL HYPOSENSITIVITY

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Introduction Biofeedback is safe and effective in the management of rectal evacuatory dysfunction (RED), but there is limited data on medium to long-term follow-up. This study evaluated the effectiveness of biofeedback in the medium-term for patients with RED secondary to pelvic floor dyssynergia (PFD) and rectal hyposensitivity (RH).

Methods Prospective data was collected from 2010 –2013 of 81 consecutive patients who underwent specialist nurse-led verbal biofeedback therapy in the form of rectal sensory re-training or balloon expulsion for PFD or RH. The primary outcome measure was patient satisfaction with their symptom improvement, assessed using a visual analogue scale (Likert scale 0–10). Secondary outcome measures were complete spontaneous bowel movements (CSBMs)/week, time to defecation-assessed using bowel diaries, and KESS/SF-36 quality of life questionnaire scores. All discharged patients received telephone follow-up.

Results 85% patients met the primary outcome measure, with the Likert score improving [mean baseline 3.2 (1–7) vs. post-biofeedback 7.6 (5–9) p < 0.001]. Improvements were seen in CSBMs/week [mean baseline: 3.0 (1–14) vs. post-biofeedback: 6.9 (1–13) P < 0.001] and time taken to defecate in minutes [mean baseline: 18.7 (5–60) vs. post-biofeedback: 8.7(5–30) P < 0.001]. Significant improvements were seen in KESS [mean baseline 13.1 (9–18) vs. post-biofeedback 4.9 (0–16) p < 0.001] and SF-36 scores. Mean number of biofeedback treatments received was four (1–6). 89% of patients discharged still meet the primary endpoint at a mean follow-up of 19 months (range 7–36).

Conclusion Biofeedback has a key role to play in the management of rectal evacuatory dysfunction secondary to pelvic floor dyssynergia and rectal hyposensitivity, with the improvement being maintained in the medium-term.

Disclosure of Interest None Declared.

PWE-011 CHARTING THE VOLATILE ORGANIC METABOLOME (VOM): A COMPARISON OF MURINE AND HUMAN FAECES

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Introduction The metabolome is important in the development of IBD and colorectal cancer. It may be studied using gas chromatography mass spectrometry (GCMS) or electronic noses that sniff the volatile organic compounds, which comprise a large portion of the metabolome. However the healthy volatile organic metabolites (VOMs) of mice remain uncharted, nor have mouse models been validated for use in comparative studies of VOMs with humans.

Methods We collected serial samples from healthy C57 BL/6 mice and a healthy human, as part of our method development for VOM studies in colitis and colorectal cancer. The samples were enclosed in glass vials and the VOMs extracted from the headspace gas. VOMs were analysed using GCMS and the resultant fragmentation patterns compared to the NIST database for compound identification. VOMs from murine and human samples were compared. The consistency of mouse and human samples over time and between individuals was also examined by listing the rank position in quintiles over serial samples.

Results 60 individual VOMs were identified from mice and 87 in the human, with a 22% correlation between the two. Most notable in the murine sample was the high concentration of simple organic molecules such as hexane and short chain aldehydes. Several compounds were found in the murine sample that had not been seen in human samples and probably reflect urine contamination from incontinent mice. The greatest concentration of VOMs in the mouse were: hexanal, 2.2.4.6.6-pentamethyl-heptane and pentanal. By comparison, in the human, complex cycloalkenes and benzene-based compounds, such as 1-methyl-4-(1-methylethylidene)-cyclohexene, were in abundance. Chief compounds in the human were: D Limonene, 2-methyl phenol and indole. Several molecules were prominent in both mouse and human, such as acetone, short chain organic acids including hexanoic, pentanoic and butanoic acids and D-limonene. The more simple compounds likely reflect a combination of the metabolic effluvia of common intestinal microbiota and mammalian physiology. The position of VOMs in each quartile was found to be consistent with 86% recurrence in the first quartile, 71% in the last quartile.

Conclusion This is the first description of the VOC metabolome of C57 BL/6 mice. A comparison with human samples shows there is a low but notable correlation between the two species. Many of the VOCs present are by-products of microbial and cellular metabolism. The difference in number and complexity of the VOCs found in the human, compared with the mouse, may reflect varied diet and a more complex intestinal microbiome. Such data will allow calibration of future studies of colonic disease in humans and through the induction of colonic disease in mice.

Disclosure of Interest None Declared.

PWE-012 ASSESSMENT OF BACTERIAL DIVERSITY IN COLORECTAL ADENOMATOUS POLYPS

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