Introduction Pathogen-related diarrhoea causes significant morbidity and mortality worldwide. Our studies have previously shown that soluble dietary fibre (non-starch polysaccharides, NSP), particularly from plantain bananas, can inhibit epithelial adherence of diarrhoeal pathogens *in vitro* and *ex vivo* (*J. Nutr. Biochem.* 2013;24:97–103).

Methods Here we aimed to establish whether plantain NSP exerts its inhibitory effect on pathogen adhesion to intestinal epithelium through either interaction with bacterial carbohydrate-binding proteins (adhesins) or via action on the epithelium itself. Prior to infection (MOI 100) of Caco2 human intestinal epithelial cells with *C. difficile* (2 h), *Salmonella* Typhimurium LT2 (1.5 h) or ETEC (1.5 h), monolayers were either 1) pre-treated with plantain NSP (0–10 mg/mL – a concentration that is readily achievable *in vivo* with dietary supplementation) for 30 min followed by inoculation, 2) pre-treated for 30 min, plantain NSP removed by thorough sterile saline washes before infection, or 3) infected with bacteria that had been pre-treated with NSP for 30 min followed by washing to remove non-adherent soluble fibre. Following infection, non-adherent bacteria were removed by sterile washes and adherent bacteria enumerated by overnight culture colony counts.

Results Plantain NSP (5 mg/mL) significantly decreased bacterial adhesion to Caco2 (% inhibition of adhesion for LT2 $89 \pm 5\%$; *C. difficile* $92.9 \pm 2\%$; ETEC $65.8 \pm 1\%$; all $P < 0.001$) compared to untreated cells. When plantain NSP was added to epithelial monolayers followed by washing to remove non-adherent fibre prior to infection, bacterial adherence was still markedly reduced (LT2 $59.2 \pm 5\%$ inhibition; *C. difficile* $59.2 \pm 5\%$; ETEC $45.0 \pm 2\%$, all $P < 0.01$). Pre-incubation of bacteria with plantain NSP followed by removal with sterile washes prior to infection resulted in no significant inhibition of adhesion compared to untreated controls. Thus inhibition of bacterial adherence to the epithelium by soluble NSP is mediated via an interaction between the NSP and the epithelium. This is supported by data from Ussing chamber experiments (PLOSOne; In press) showing that pre-treatment of human ileal tissue with plantain NSP results in a marked increase in transmucosal short circuit current (I_{sc}) implying Cl^- secretion (peak ΔI_{sc} $5.86 \pm 1.89 \mu A.cm^{-2}$ 50 min post-NSP addition; $P < 0.01$) without any effect on TEER.

Conclusion Soluble plantain NSP exerts its inhibitory effect on *C. difficile*, ETEC and *Salmonella* adhesion to the intestinal epithelium via action on the epithelium rather than through interaction with bacterial adhesins. This effect is probably mediated by increased epithelial Cl^- secretion.

Disclosure of Interest H. Simpson Grant/research support from: Proxavis plc, Bo and Vera Axe:son Johnson Foundation for Nature Medicine Limited and Arcis Biotechnology, Å. Keita: None Declared, J. Söderholm: None Declared, J. Rhodes Consultant for: advisory boards of Atlantic, Procter and Gamble and Falk, Speaker bureau with: Has received speaking honoraria from Abbott, Falk, Ferring, Glaxo Smith Kline, Procter and Gamble, Schering Plough, Conflict with: Holds a patent with the University of Liverpool and Proxavis plc for use of a soluble fibre preparation as maintenance therapy for Crohn's disease, B. Campbell Grant/research support from: Proxavis plc, Bo and Vera Axe:son Johnson Foundation for Nature Medicine Limited and Arcis Biotechnology, Speaker bureau with: Received a speaking honorarium from Amgen Inc.

PTH-141 WIRELESS CAPSULE ENDOSCOPY – DIAGNOSTIC YIELD AND CLINICAL UTILITY VARIES WIDELY ACCORDING TO INDICATION

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Introduction Wireless capsule endoscopy (WCE) is a well established technique for imaging the small bowel, with an increasing clinical uptake and range of indications. We aimed to evaluate the utility of WCE, comparing the diagnostic yield of procedures by indication.

Methods We performed a retrospective analysis of all WCE procedures performed at our centre, January 2007 to March 2013.

Results A total of 293 procedures were performed in 279 patients, male 47%. Median age at time of procedure was 59 (IQR 45–71). The indications were: iron deficiency anaemia (IDA)/occult GI bleeding 154 (53%), known Crohn's disease requiring assessment 58 (20%), abdominal pain (+/- other symptoms) 33 (11%), overt GI bleeding 20 (7%), isolated diarrhoea 10 (3%), coeliac disease 6 (2%), isolated weight loss 4 (1%), other 8 (3%). Of those undergoing WCE for symptoms (47; 16%), Crohn's disease was excluded (an aim of performing the study) in 34 (72%).

The median gastric transit time was 27 min (IQR 14–55), small bowel transit time 243 min (IQR 181–300). Unplanned endoscopy for failure of capsule progression was required in 8 cases (3%). 5 procedures (2%) failed to image the small bowel (failed to leave stomach (3), battery failure (1), poor views (1)). A prokinetic was used in 9% ($n = 27$) of procedures.

Overall the diagnostic yield was 50%. Separating by indication, the diagnostic yield was highest for overt GI bleeding, 70% overall ($n = 14$), identifying both 9/20 small bowel causes and 5/20 in colon/upper GI tract. Yield for Crohn's disease assessment was 63%, IDA/occult GI bleeding 46%, abdominal pain (+/- other GI symptoms) 47%. The diagnostic yield of WCE for abdominal pain in the absence of other symptoms or abnormal radiology/ileoscopy was only 14%. 23 out of 27 patients evaluated for symptoms (in the absence of anaemia/known Crohn's) were discharged requiring no further investigation following a negative result.

Conclusion Wireless capsule endoscopy has a good diagnostic yield, especially for evaluating GI blood loss (overt or occult) and assessing small bowel Crohn's disease. Among highly symptomatic patients, WCE can facilitate completion of investigatory pathways and enable discharge to primary care. The utility of WCE in investigating isolated abdominal pain appears limited.

Disclosure of Interest None Declared.

PTH-142 DOES DOUBLE BALLOON ENTEROSCOPY AFFECT MANAGEMENT IN PATIENTS WITH SUSPECTED SMALL BOWEL TUMOURS? EXPERIENCE FROM A SINGLE TERTIARY CENTRE

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Introduction The advent of small bowel capsule endoscopy (CE) has greatly improved the diagnosis of small bowel tumours. Double balloon enteroscopy (DBE) is the interventional counterpart to CE and has the advantage of direct visualisation of small bowel pathology, biopsy and therapeutic capability. There is however a paucity of data on the use of DBE for small bowel tumours. The aim of this study was to assess the utility of DBE for small bowel tumours and to assess its impact on the diagnostic pathway in this cohort.

Methods Data was collected prospectively on all DBE procedures performed routinely between July 2006 and December 2013 particularly for the indication of small bowel tumours.