Abstract O59 Table 1 Quantifying abnormal colonic function in constipation using MRI

MRI parameters					
Parameter		**HV**	**IBS-C**	**FC**	
Volume (mL)	Baseline	599±210	760±233	953±275*	p=0.01 ANOVA
	Maximum	998±315	1310±407*	1585±424*†	
Content mixing (%)	Baseline	23±10	17±9	20±4	p=0.4 ANOVA
	Maximum	38±11	31±7	29±7	
Transit Score		1.33±1.5	2.64±1.8*	2.57±1.24	p=0.006 ANOVA
Time to FIRST Bowel Movement (<150 min)		22/31 (71%)	8/23 (35%)	3/12 (25%)	p=0.002 Chi Square for trend

*p<0.05 vs HV, †p<0.05 vs IBS-C (Tukey's MC)

clinical response. We performed an interim analysis of MRI data collected so far to assess the colonic response to an osmotic laxative in patients with constipation and health.

Methods Participants recruited across two sites were classified as healthy volunteers (HV), constipation-predominant IBS (IBS-C) or functional constipation (FC) based on ROME IV criteria.

A fasting baseline scan was performed using a 3T Philips Ingenia scanner. Participants then consumed MoviPrep™ and had two further scans at 60 and 120 mins. MRI measures included: colonic volume, transit time (using the weighted-average position score 0–7 of transit markers taken the previous day; higher scores = slower transit) and a metric of mixing of colonic contents (% coefficient of variance in MRI data tagged to give sensitivity to movement, averaged over ascending colon region of interest). Image analysis was performed blind to participant condition.

Baseline and maximum value reached were used to allow for different oral-caecal transit and mid-study defaecation. Time from MoviPrep™ to first bowel movement (TBM) was recorded using a cut off at 150 min (average time spent at centre).

Results To date, 66 participants have completed MRI (31 HVs, age and gender matched to 23 IBS-C and 12 FC: results outlined in table 1). After MoviPrep™, largest volumes and increase from baseline was seen in the FC group compared to IBS-C and HV. Transit scores and TBM were variable but showed slower transit for the patient groups compared to HV. Whilst mixing decreased in patients compared to HV this was not significant.

Conclusion The MoviPrep™ challenge, as previously reported, demonstrates larger colons and slower transit in patients with constipation compared to health and could now be used to quantify abnormal function in clinical practice.

O60 ALTERED COLONIC NEUROINFLAMMATORY PROFILE IN IRRITABLE BOWEL SYNDROME WITH AND WITHOUT HYPERMOBILE EHLERS DANLOS SYNDROME

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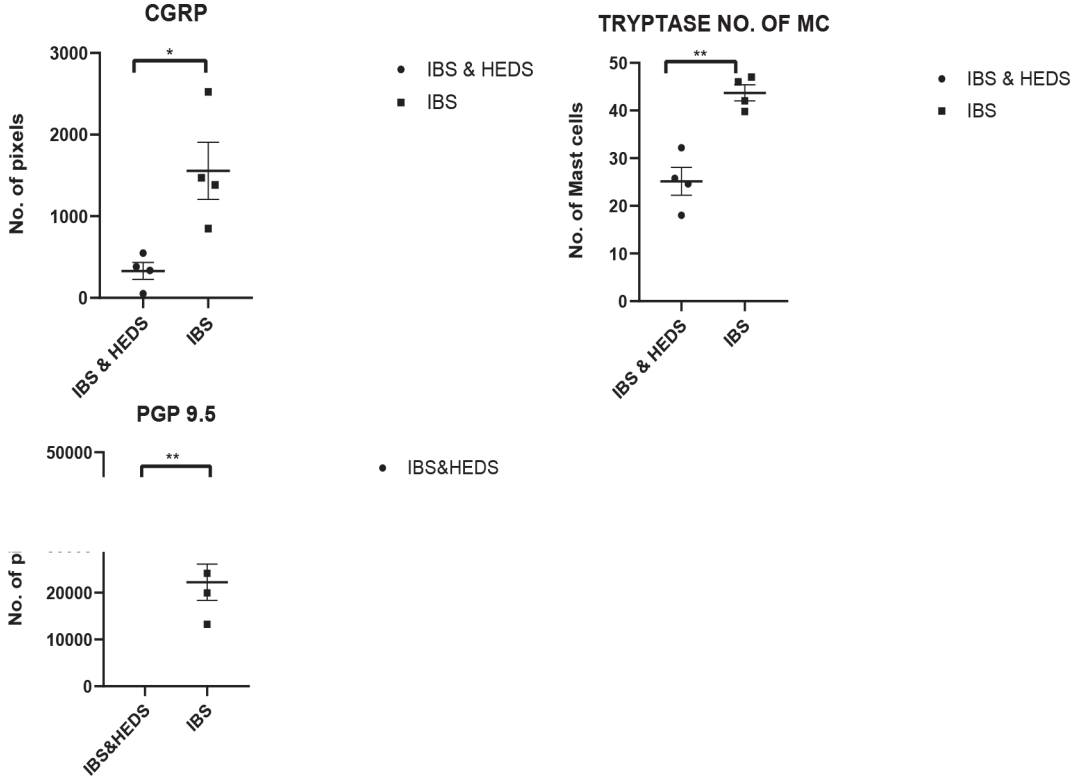

Abstract O60 Figure 1

Introduction Hypermobile Ehlers-Danlos syndrome (hEDS), characterized by skin hyperextensibility, tissue fragility and joint hypermobility, is associated with features consistent with irritable bowel syndrome (IBS) (Nelson at al 2015, Zeitoun et al, 2013). In IBS, abdominal pain is associated with increased colonic sensitivity and increased density of nerve fibres (Akbar et al 2008) and mast cells (Barbara et al 2004). Tenascin X knockout mice, that are phenotypically similar to hEDS, also have increased afferent sensitivity and expression of nociceptive calcitonin gene related peptide (CGRP) nerve fibres in the colonic mucosa (Aktar et al 2018). Therefore, we hypothesize that nerve and mast cell profile are also altered in hEDS patients with IBS features; similar to findings in previous IBS studies and in animal models of hypermobility.

Methods Immunofluorescence-immunohistochemistry (IF-IHC) was used to evaluate expression of mast cell tryptase (AA1 Dako, M7052, 1:400) and the neural markers CGRP (Thermo Scientific ABS 0260502, 1:200) and Protein Gene Product (PGP9.5,Dako, Z5116, 1:400) in the colonic mucosa of: IBS patients (N=4), and IBS patients with comorbid hEDS (N=4). To determine the presence of positive fibres a threshold of 20% above background (0% = black image) was used. The positive areas were highlighted to give a 'region of interest;' thereafter the number of pixels in the region of interest were measured. Mast cells were counted on Image J using the multipoint tool. Results were analysed using an unpaired *t-test* for each marker; with significance set at $p<0.05$.

Results The comorbid IBS/hEDS group demonstrated a 2-fold proliferation in PGP 9.5 immunoreactive fibers (41476 ± 6196) compared to those with IBS alone (22245 ± 3404, p = 0.003). However, CGRP positive fibers and mast cells were significantly reduced in hEDS/IBS overlap compared to IBS alone (CGRP: comorbid IBS/hEDS: 329 ± 165 vs IBS alone 1557 ± 559, p = 0.015), (Mast cell tryptase: comorbid IBS/hEDS: 25 ± 3 vs IBS alone 44 ± 5, p = 0.001). (Figure 1).

Conclusion This difference in colonic neuronal innervation and mast cell expression in IBS patients with hEDS suggests that different inflammatory/nociceptive pathways are involved in comorbid IBS/hEDS. The overlap group may form its own subgroup within a wider IBS cohort; however, this requires further investigation in larger number of patients. Ultimately, this data may enable more targeted treatment of IBS symptoms in hEDS versus IBS alone in the future.

O61 EFFICACY OF PSYCHOLOGICAL THERAPIES FOR IRRITABLE BOWEL SYNDROME: SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

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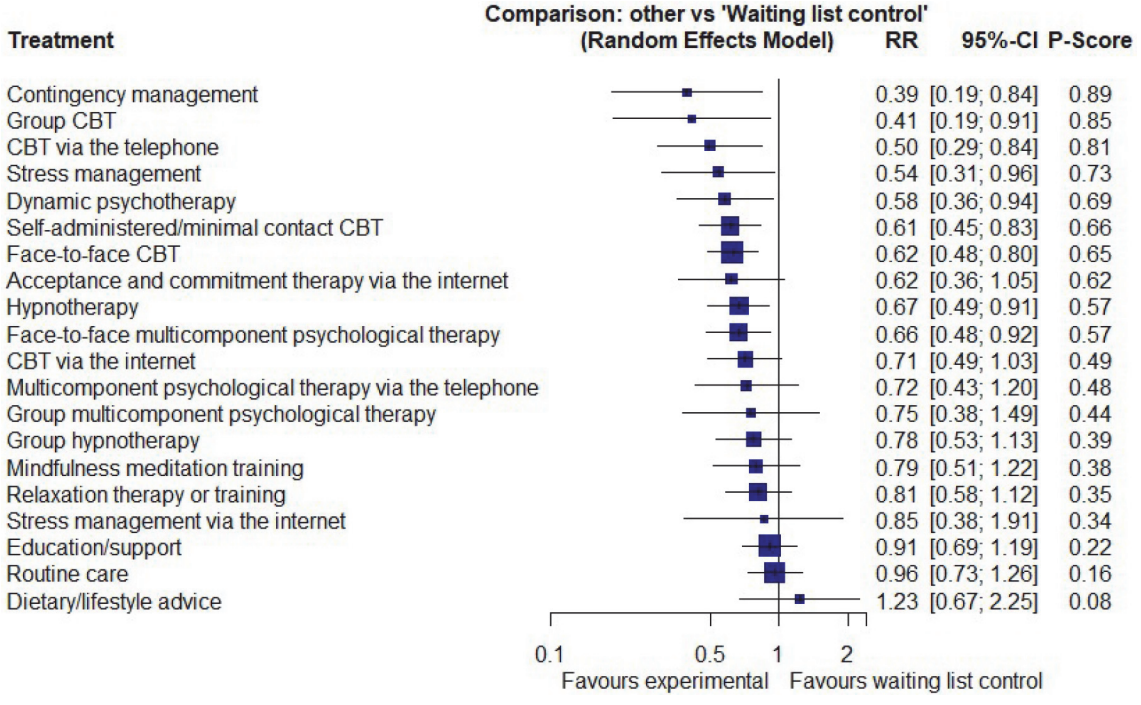
Introduction National guidelines for the management of irritable bowel syndrome (IBS) recommend that psychological therapies should be considered, but their relative efficacy is unknown, because there have been few head-to-head trials. We conducted a network meta-analysis to resolve this uncertainty.

Methods We searched MEDLINE, EMBASE, EMBASE Classic, PsychINFO, and the Cochrane central register of controlled trials through January 2020 to identify randomised controlled



Abstract O61 Figure 1 Forest Plot for Failure to Achieve an Improvement in IBS Symptoms at First Point of Follow-up Post-treatment