outcome measures: IBS Symptom Severity Score (IBS SSS) and Work and Social Adjustment Scale (WSAS). Baseline and follow up data was patient reported and collected on-line at 3, 6 and 12 months. Analysis: Intention-to-treat with multiple imputation at 12 months.

Results 558/1452 (38.4%) patients screened for eligibility recruited: 186 randomised to TCBT, 185 WCBT, 187 TAU. Mean baseline IBS SSS 265.0. At 12 months TAU IBS SSS score was 205.6, compared to 61.6 points lower for TCBT (95% CI 89.5; 33.8; $p < 0.001$) and 35.5 lower for WCBT (95% CI 58.0; 13.1; $p \geq 0.002$). WSAS score: TAU=10.8 at 12 months and 3.5 lower with TCBT (95% CI 5.1; 1.9; $p < 0.001$), 3.0 points lower with WCBT (95% CI 4.6; 1.3; $p < 0.001$). Secondary outcomes: Subjects Global improvement of symptoms (SGA) 84.8% responders TCBT at 12 months compared to 41.7% TAU OR 6.1 (95% CI 2.5; 15.0; $p < 0.001$) and 75.0% for WCBT OR 3.5 (95% CI 2.0 to 6.1; $p < 0.001$). Patient enablement (PEQ) 78.3% responders TCBT, 23.5% TAU OR 9.2 (95% CI 4.3; 19.4; $p < 0.001$) and 54.8% for WCBT OR 3.6 (95% CI 2.1; 6.1; $p < 0.001$).

Conclusions To date, this is the largest trial of CBT for IBS worldwide. Both CBT arms showed significant improvements in IBS outcomes compared to TAU, sustained at 12 months. TCBT had larger effects than WCBT. CBT for IBS can be effectively delivered to a broad range of patients with refractory IBS.

OWE-029 MAGNETO-ELECTRIC STIMULATION OF THE HUMAN CEREBELLUM PREVENTS SWALLOWING DYSFUNCTION INDUCED BY A CORTICAL VIRTUAL LESION

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Introduction Repetitive transcranial magnetic stimulation (rTMS) is a neurostimulatory technique which can be used to alter neuronal activity within targeted regions of the brain. Furthermore, in post stroke dysphagia, recovery of swallowing function is thought to be related to increased activity in the undamaged cortical swallowing hemisphere.¹ Here, we wanted to determine if stimulation of the cerebellum, known to be activated during swallowing² can enhance swallowing when disrupted by a virtual lesion as a prelude to using cerebellar stimulation therapeutically.

Aim To compare the effects of ipsilateral and contralateral 10 Hz cerebellar rTMS versus sham stimulation on swallowing behaviour following a virtual lesion to the pharyngeal motor cortex.

Method Healthy human participants ($n \geq 10$) were intubated with a pharyngeal catheter. Baseline swallowing performance was then measured using a water swallowing reaction time task. Participants received 10 min of 1 Hz rTMS (virtual lesion) to the pharyngeal motor cortex which elicited the largest pharyngeal motor evoked potentials. This causes a disruption of swallowing behaviour. Over 3 separate visits to the laboratory, participants were then randomised to receive 250 pulses of 10 Hz cerebellar rTMS to the ipsilateral side, contralateral side or sham (2). Swallowing performance was measured at 15 min intervals up to an hour after cerebellar rTMS. **Results** rTMS was well tolerated by all subjects. Sham stimulation was associated with the expected increase in fast swallow

time latency ($\chi^2 \geq 11.429$ $p \geq 0.044$) with changes from baseline at 15 min post intervention ($Z \geq -1.988$, $p \geq 0.047$) and 60 min post intervention ($Z \geq -1.988$, $p \geq 0.047$) and poorer performance in challenged swallows at 30 min post intervention ($Z \geq -2.352$, $p \geq 0.019$). By contrast, participants who received ipsilateral or contralateral cerebellar rTMS showed no evidence for the expected disruption of fast and challenge swallows compared to baseline ($p > 0.05$), implying a reversal effect (Fig 1).

Conclusion Ipsilateral and contralateral 10 Hz cerebellar rTMS was able to block the disruptive effects of a virtual lesion in the swallowing motor cortex. There were no differences ipsilateral and contralateral cerebellar stimulation on swallowing behaviour, suggesting that activation of either cerebellar hemisphere might be therapeutically useful in dysphagic stroke.

REFERENCES

1. Hamdy S, et al. Recovery of swallowing after dysphagic stroke relates to functional reorganization in the intact motor cortex. *Gastro* 1998
2. Vasant, et al. High-frequency focal repetitive cerebellar stimulation induces prolonged increases in human pharyngeal motor cortex excitability. *J Physiol* 2015

OWE-030 A DOSE RANGING STUDY OF TRANS-SPINAL MAGNETIC STIMULATION FOR THE TREATMENT OF FAECAL INCONTINENCE

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Introduction Current treatments for faecal incontinence (FI) are only modestly effective. FI is characterised by significant anorectal neuropathy, yet treatments for neuropathic FI are limited. In a randomised dose ranging trial, we investigated the plausibility and optimal frequency of a novel neuromodulation therapy by administering repetitive translumbar (rTLMS) and transsacral magnetic stimulation (rTSMS) in patients with FI

Methods FI patients (≥ 1 episode/week) were randomised to receive weekly rTLMS and rTSMS treatments with either 1 Hz, 5 Hz, or 15 Hz, over six weeks. Two trains of 300 stimulations each were given at 4 sites (Total ≥ 2400 pulses), by applying transcutaneous magnetic stimulation via a focal coil to the lumbar and sacral regions. Daily FI episodes and bowel symptoms were assessed with prospective stool diaries and compared before and after treatment. FI severity index (FISI) and subject's global assessment (SGA) were also compared. Patients with $\geq 50\%$ decrease in weekly FI episodes were considered responders.

Results Twenty-six FI patients, F/M $\geq 18/8$ participated; 9 were randomised to 1 Hz, 8 to 5 Hz and 9 to 15 Hz respectively. Results summarised in Table 1. The weekly FI episodes decreased significantly in the 1 Hz ($p \geq 0.004$) and 15 Hz group ($p \geq 0.023$), but not in 5 Hz group ($p \geq 0.281$) when compared to baseline, but there was no difference between groups ($p = 0.170$). There was a significant difference between responder rates ($p = 0.024$) with the 1 Hz group showing a significantly higher responder rate (88.9%) than the 5 Hz group (25%), but not between other groups. After treatment, the FISI score increased by $34.6\% \pm 18.4\%$ in 1 Hz group, $12.0\% \pm 4.9\%$ in 5 Hz group, and $17.6\% \pm 16.1\%$ in 15 Hz group, but there was no difference between groups ($p \geq 0.652$). Complete or considerable improvement in FI symptoms was reported by 66.7% in 1 Hz group, 37.5% in 5 Hz group and

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44.4% in 15 Hz group ($p \geq 0.480$). One patient had numbness/tingling in the right arm in 5 Hz group.

Conclusions In this interim analysis, repetitive translumbar and transsacral magnetic stimulation appears safe, and at 1 Hz frequency showed significant superiority when compared to higher frequencies for the treatment of FI. This non-invasive neuromodulation modality offers promise as a novel treatment approach for FI.

Abstract OWE-030 Table 1 Summary of results

	1 Hz		5 Hz		15 Hz	
	Baseline	Post-Treat	Baseline	Post-Treat	Baseline	Post-Treat
FI episodes/Wk	7.1±2.7	2.0±1.3*	10.6 ±4.5	9.1±3.7	5.0±2.5	2.3±0.8*
Responder rate (%)		88.9% [‡]		25%		44.4%
FISI score δ (%)		34.6±18.4		12.0±4.9		17.6±16.1
Considerable or Complete relief		66.7%		37.5%		44.4%
Mild or Unchanged		33.3%		62.5%		44.4%
Worse		0		0		11.1%

Bold = * $p < 0.05$ vs baseline; [‡] vs 5Hz

OWE-031 OESOPHAGEAL APERISTALSIS IS UNDER INVESTIGATED IN THOSE WITHOUT ACHALASIA OR REFLUX

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Introduction Oesophageal aperistalsis (OA) is the absence of oesophageal motility with water swallows at high-resolution manometry (HRM). The main causes are achalasia and reflux although in many patients no cause is found, therefore we aimed to investigate the number of patients with an identifiable cause of OA and the number of patients in whom the most common aetiologies have been determined. There is no consensus for the investigation of OA without achalasia; this will depend on how common the underlying aetiology is.

Methods We examined the reports of patients who had HRM at Guy's and St. Thomas' NHS Trust from January 2008 to July 2017. 492 patients had OA as per the Chicago Classification 2014; achalasia was defined as an integrated relaxation pressure (IRP) of >15 mmHg or IRP 12–15 mmHg and a barium swallow or other imaging or a previous myotomy for achalasia was identified. For those without achalasia, Gastroesophageal reflux disease (GORD) was defined according to any pH study off PPI. Patients without GORD or achalasia were classified as non-achalasia, non-reflux aperistalsis (NANRA). Non-achalasia patients without a pH study were excluded ($n \geq 35$). The electronic patient record of NANRA patients was consulted to look for evidence of autoimmune disorders (AD), eosinophilic oesophagitis (EoE) or previous oesophageal surgery.

Results Among 457 included patients we defined three categories: 183 (40%) had achalasia, 185 (41%) had GORD and 89 (19%) had NANRA.

Of the 89 NANRA patients, 29% had an AD including Systemic Lupus Erythematosus, Scleroderma, Sjögren syndrome and Antisynthetase syndrome ($n \geq 25$, M:F 3:7, average age ≥ 48). One had Myotonic Dystrophy ($n \geq 1$); 11% ($n \geq 10$) had hypersensitive oesophagus; 6% ($n \geq 5$) had surgery for atresia, oesophageal spasm, or gastric cancer; 2% ($n \geq 2$) had EoE and in 2% ($n \geq 2$) of patients AD screen and EoE screen were normal. The remaining 50% of NANRA patients ($n \geq 44$) had an unknown cause but incomplete investigations (no screen for AD: 97.7%; no biopsy: 67.4%).

Conclusions 1. The principal cause of OA is achalasia; it shouldn't be dismissed as a cause even if the IRP is <15 mmHg as 6.5% ($n \geq 12$) of patients with achalasia and OA had IRP <15 mmHg but typical radiological findings.

2. GORD is present in 41% of patients but it is unclear whether it is a cause or effect of OA, therefore the finding of GORD should not stop further investigation.

3. Patients with OA are under investigated for AD and EoE. 50% of patients with NANRA had incomplete investigations potentially losing the opportunity to identify other aetiologies. It is unclear whether NANRA patients should be routinely tested for AD or for EoE, or whether this should be done only in selected cases.

OWE-032 A RANDOMISED PLACEBO-CONTROLLED TRIAL OF A MULTI-STRAIN PROBIOTIC FORMULATION. (BIO-KULT®) IN THE MANAGEMENT OF IBS-D

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Introduction Increasing evidence supports the viewpoint that alterations in the diversity and function of gastrointestinal bacteria contributes to IBS, and that increasing the mass of beneficial species, by consuming probiotics, may lower pathogenic bacteria numbers and help alleviate symptoms.

Methods In this double-blind trial, a total of 360 adult patients with moderate-to-severe symptomatic diarrhoeapredominant IBS (IBS-D) were randomised to receive either treatment with the multi-strain probiotic Bio-Kult (14 different bacterial strains) or placebo for 16 weeks. The primary outcome measure was change in abdominal pain. The secondary outcomes included frequency of bowel motions, overall change in IBS-severity scoring system (IBS-SSS) and IBS specific quality of life (IBS-QoL).

Results In comparison to placebo, treatment with probiotics significantly alleviated the severity of abdominal pain in patients with IBS-D: 69% reduction for probiotic versus 47% for placebo ($p < 0.001$), equating to a 145 point reduction on the IBS-SSS. The level of patients rating their symptoms as moderate-to-severe was reduced from 100% at baseline to 14% in the multi-strain probiotic group by follow-up (month 5) versus 48% for placebo ($p < 0.001$). In addition, the number of bowel motions per day from month 2 onwards was significantly reduced in the probiotic group compared with the placebo group ($p < 0.05$). In addition to relieving symptoms, the probiotic markedly improved all dimensions of quality of life in the 34-item IBS-QoL questionnaire. No serious adverse events were reported.

Conclusions The multi-strain probiotic was associated with significant improvement in symptoms in IBS-D patients, and was well-