difference in patients' sensory to rectal distension ($p=0.4527$), perception urge volume to defecate ($p=0.1499$) and the maximum rectal capacity ($p=0.2332$).

The anorectal electro-sensory were generally normal in both subtypes of FI and there was no statistical difference in the anal mucosal sensory ($p=0.088$) or rectal mucosal sensory ($p=0.4450$).

Conclusion This study showed that FI can be subtyped into I and II based on the distinctive pathophysiology findings. The subtyping of FI are likely to link the options for clinical management.

REFERENCE

1. Jameson J., et al., 1994, *Br J Surg.* **81**(11):p1689–92.

PWE-087 OESOPHAGEAL BODY MOTILITY AND REFLUX PROFILES IN PATIENTS WITH OESOPHAGOGASTRIC JUNCTION OUTFLOW OBSTRUCTION

Ismail Miah*, Terry Wong, Jafar Jafari. *Guy's and St Thomas' NHS Trust, Greater London, UK*

10.1136/gutjnl-2019-BSGAbstracts.407

Introduction Oesophagogastric junction outflow obstruction (OGJOO) has multifactorial aetiology that is closely ranking to achalasia in the Chicago classification [1] algorithm which take precedence to oesophageal body motility disorders. As a result, any coexisting oesophageal motility disorders is neglected.

In this study we assess the prevalence of the oesophageal body dysmotility and reflux disease in patients with OGJOO.

Method Patients were selected between November 2014 and December 2018 with OGJOO. The diagnosis was based on the high-resolution manometry testing (Sierra Scientific Instruments HRM system) and the Chicago Classification criteria [1].

The reflux monitoring was performed using Sandhill Scientific multichannel impedance-pH catheters (ZAN-BG-44). True reflux was accepted when retrograde impedance flow with concurrent oesophageal pH sensor detecting <4 . Assessment of reflux was made for oesophageal hypersensitivity, daytime & night time pathological reflux exposure and gastroesophageal reflux disease (GORD) (total exposure $>4.3\%$ & DeMeester score >14.72).

Appropriate Fisher exact test and t-test were performed.

Results Total patients selected is 202 (F:M=144:58, aged 1–9 years).

85/202 patients (42.1%) showed oesophageal body dysmotility disorders co-existing with OGJOO diagnosis. Of which, 70/85 patients had minor motility disorders (ineffective oesophageal motility 77.5%, fragmented peristalsis 22.5%) and 15/85 had major motility disorders (Jackhammer oesophagus 100%, distal oesophageal spasm 0%) ($p<0.0001$).

Reflux monitoring was performed on 145 patients with OGJOO. In 14/15 of the OGJOO patients asymptomatic to reflux symptoms did not have reflux disease whereas 45/130 of OGJOO reporting typical reflux symptoms (heartburn, chest pain & regurgitation) had reflux disease ($p=0.0206$). The odds OGJOO patients not having reflux disease when

asymptomatic is 7.41. In the 45 patients with pathological acid reflux exposure, 64.4% had daytime reflux disease, 22.2% nocturnal reflux disease and 13.3% of patients revealed oesophageal hypersensitivity. Moreover, 28/45 of these patients showed diagnostic compatibility with GORD. In 14/28 patients with OGJOO concurrent with GORD had abnormal motility whereas 68/82 OGJOO patients (without GORD) had normal oesophageal motility ($p=0.1258$). There also no statistical difference in the integrated relaxation pressure of the lower oesophageal sphincter in the OGJOO patients with and without GORD (19.0mmHg vs 20.4 mmHg, $p=0.1002$).

Conclusion The findings of this study revealed OGJOO disorder can co-exist with minor and major oesophageal body motility disorders in 42% of the cases and 30% of cases have reflux disease. These findings may impact on the options for managing the OGJOO.

REFERENCE

- 1.. Kahrilas PJ, et al. The Chicago Classification of Esophageal Motility Disorders, v3.0 *Neurogastroenterol Motil* 2015;27(2):160–174.Rami bread swallows

PWE-088 GORD MANAGEMENT – OESOPHAGOGASTRIC JUNCTION DILATATION?

Ismail Miah*, Terry Wong, Jafar Jafari. *Guy's and St Thomas' NHS Trust, Greater London, UK*

10.1136/gutjnl-2019-BSGAbstracts.408

Introduction A group of patients with gastro-oesophageal reflux disease (GORD) also have oesophagogastric outflow obstruction (OGJOO) condition. Given the nature of the motility disorder, treatment of GORD in these patients would differ from GORD being caused by an incompetent GOJ. In this study we assess the GORD mechanism in patients with OGJOO.

Method Patients were screened between 2015 to 2018 with 24hr impedance-pH monitoring and high-resolution manometry (HRM) testing. Two groups of GORD patients were selected: patients also having OGJOO (group 1) and patients having normal oesophageal motility (group 2). The manometry assessment for OGJOO and normal motility was based on Chicago classification [1].

Results Total number of patients selected was 66: group 1 (F:M=21:7; age 4–0 years) and group 2 (F:M=27:11; 2–8 years).

Group 2 showed significantly higher acid reflux count (47.2 vs 32.1, $p=0.0036$) and a ratio of acid exposure time per acid reflux episode which significantly higher in group 1 (8.0 mins/episode vs 3.1 mins/episode, $p=0.0215$).

The total acid exposure between group 1 and group 2 was not significantly different (percent clearance time on pH was 10.2% vs 9.3% [$p=0.2372$] and acid exposure time was 139.24mins vs 121.10mins [$p=0.1536$]).

Conclusion There is indication that mechanism of GORD in OGJOO is mainly due to poor clearance of acid. Therefore, patients with GORD concurrent with OGJOO condition may benefit from improved oesophageal clearance, such as with OGJ dilatation opposed to antireflux surgery.

This study was limited by the sample size.

REFERENCE

1. Kahrilas PJ, et al. The Chicago Classification of Esophageal Motility Disorders, v3.0 *Neurogastroenterol Motil* 2015;**27**(2):160–174.

PWE-089 UNCOVERING PROGNOSTIC MARKERS IN PATIENTS WITH TYPE 1 ACHALASIA USING SOLID BOLUS SWALLOWS

Ismail Miah*, Terry Wong, Jafar Jafari. *Guy's and St Thomas' NHS Trust, Greater London, UK*

10.1136/gutjnl-2019-BSGAbstracts.409

Introduction Type 1 achalasia diagnosis based on the standard water swallow method [1] has shown homogenously to having poor prognosis compared other subtypes. Moreover, the response to solid bolus swallows in patients with type 1 achalasia may differ from standard water swallows thus can pave alternative treatment plans.

The aim of this study is to investigate the nature of the oesophageal motility in patients with type 1 achalasia when challenged with solid swallows.

Method Patients with type 1 achalasia were selected from 201–018.

The type 1 achalasia diagnosis was based on high-resolution manometry testing (Sierra Scientific Instruments) and the Chicago classification (CC)[1]. Solid bolus swallows were performed using bread and butter sandwich meal which was consumed by patients' with their bitesize volumes. The distal contractile integral and the length of the panoesophageal pressurisation on CC criteria were adopted for the solid swallows [2] to assess the oesophageal body motility.

Results In total, 76 patients (F:M=50:48, aged 1–9 years) were diagnosed with achalasia type 1 based on CC who also underwent bread swallow assessment.

38/76 patients (50%) showed oesophageal body motility features contradictory to type 1 achalasia on solid bolus: 33/38 patients (86.8%) demonstrated at least two swallows with panoesophageal pressurisation, 5/38 (13.2%) demonstrated reserved oesophageal body peristalsis on 2 or more occasions during solid bolus swallows.

Conclusion This research indicates that solid swallows may add valuable clinical information for tailoring the treatment of patient with type 1 achalasia.

Conducting solid bolus swallows on achalasia type 1 patients showed a mixture of response: i) unchanged response to standard water swallow outcome (50%) , ii) mimicking type 2 achalasia (43.4%) and iii) revealing peristaltic activity (6.6%)

REFERENCE

1. Kahrilas PJ, et al. The Chicago Classification of Esophageal Motility Disorders, v3.0 *Neurogastroenterol Motil* 2015;**27**(2):160–174.
2. Sweis RT, et al. 2011. Normal values and inter-observer agreement for liquid and solid bolus swallows in upright and supine positions as assessed by esophageal high-resolution manometry. *Neurogastroenterol Motil* 2011;**23**(6):509–516.

PWE-090 NOVEL APPROACH TO ASSESS THE OESOPHAGEAL CLEARANCE

Ismail Miah*, T Wong, J Jafari. *Guy's and St Thomas' NHS Trust, Greater London, UK*

10.1136/gutjnl-2019-BSGAbstracts.410

Introduction Barium swallow study is a common procedure to assess the oesophageal clearance but this is affiliated with radiation exposure and barium ingestion side-effects.

Aim Evaluate the readily available impedance-pH monitoring to assess the oesophageal clearance.

Method Sandhill multichannel pH-impedance (MII-pH) catheters (ZAN-BG-44) and Baxter saline solution (0.9 w/v NaCl concentration) were used in this study.

In-vitro Impedance Baseline Testing:

This involved submerging 23 MII-pH catheters in test-tube filled with saline for 30 minutes.

The baseline impedance threshold of saline was identified when the impedance tracing plateau for at least 10minutes.

Oesophageal Clearance Testing:

Upon completing the manometry and locating the lower oesophageal sphincter (LOS) depth, the MII-pH catheter was inserted trans-nasally and the most distal impedance sensor was positioned 3cm above the LOS followed by subsequent impedance sensors being positioned at 5cm, 9cm, 15cm and 19cm above the LOS. Patients drank 200mL of saline quickly within 20sec. The intra-oesophageal saline clearance timed was determined at each impedance sensor by comparing the intraluminal impedance value found in the in-vitro testing. The time taken for the complete clearance of saline from oesophageal lumen was recorded.

The control group in this study were asymptomatic of dysphagia and fulfilled the normal oesophageal body motility and LOS relaxation criteria on Chicago classification [1]. The patient groups had dysphagia and were diagnosed with achalasia or oesophagogastric junction outflow obstruction (OGJOO)[1].

Statistical t-test compared the oesophageal clearance time between the three groups.

Results In-vitro impedance threshold revealed 178.3 Ohms (mean) (95% CI: 160.2–98.30 Ohms).

In total 95 patients completed the test (M:F=44:51, aged 2–9 yrs)(see table 1). There was statistical significance in the oesophageal clearance time of saline between the control group and the: a) total patient groups ($p=0.0012$); b) OGJOO group ($p=0.0002$); c) achalasia group ($p=0.0021$). There was also statistical significant difference in the oesophageal clearance time between the patient groups ($p=0.0034$) indicating that achalasia patients having relatively prolonged retention.

Abstract PWE-090 Table 1 Oesophageal clearance time of saline (in mins.)

Group	Number of cases	Mean	95% CI
Control	41	0.38	0.31, 0.45
OGJOO	37	2.78	1.64, 3.93
Achalasia	17	41.02	19.22, 62.84

Conclusion This timed impedance monitoring technique can be incorporated in reflux monitoring studies and is a feasible technique to assess the oesophageal clearance without need of radiation or barium ingestion.

REFERENCE

1. Kahrilas P, et al., 2015 *Neurogastroenterol Motil.*, **27**(2):160–174.