



Abstract P333 Figure 1 ROC for BMI predicting pathological reflux on WBM

and the NPV for absence of GORD on WBM when BMI > 2100Ω is 90.7%.

Conclusion Patients with normal ZPM and a BMI ≤ 2100Ω increases the likelihood of pathological reflux on WBM monitoring. We recommend this category of patients to be considered for WBM.

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P334

MEASURING OESOPHAGEAL TRANSIT WITH MULTICHANNEL INTRALUMINAL IMPEDANCE; AN ALTERNATIVE TO BARIUM SWALLOW

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Introduction Barium swallow is a common investigation to assess oesophageal transit. However, the technique is affiliated with radiation exposure and indigestion of barium sulphite contrast. Unlike barium swallow technique, the multichannel intraluminal impedance transit (MIIT) offers quantitative measure and may be overall cost-effective.

This study assesses the oesophageal transit time using MIIT in normal oesophageal motility and obstructive oesophageal disorders.

Method Patients were selected between January 2018 and December 2019 who underwent two investigations during fasting periods:

- High-resolution manometry (HRM) study based on Chicago Classification diagnosis.¹
- MIIT assessment with drinking 200 ml of saline and measuring the oesophageal transit time for clearance²

Based on,¹ patients with normal HRM without dysphagia were categorised to control group and dysphagia patients were categorised into OGJ outflow obstruction (OGJOO) and achalasia groups.

Abstract P334 Table 1 oesophageal transit time (minutes) in control and patients groups

Group	N	Mean [median]	Standard deviation	5%-95%CI	Range
Control	38	0.37 [0.32]	0.14	0.32 – 0.41	0.15–0.78
OGJOO	40	2.53 [2.6]	0.88	2.26 – 2.81	0.73–3.90
Achalasia	42	37.7 [36]	21.12	34.4 – 47.3	5.6–84

Statistical Prism software was used to plot receiver operating curve (ROC) to ascertain critical oesophageal transit time between control group and patient groups. Appropriate *t*-test and Fisher exact tests were employed to assess statistical significance.

Results Total number of 117 patients were selected (F: M=74:43, age 18–84 years old). There was statistical significant differences in the MIIT comparing the control group against OGJOO group ($p < 0.0001$) and against the achalasia group ($p < 0.0001$). Statistical differences were also found by comparing OGJOO and achalasia patient groups ($p < 0.0001$). The descriptive statistical data are documented in table 1.

According to the ROC analysis, oesophageal transit time of 0.76 mins will differentiate between normal and OGJOO disorder (sensitivity=91.2%-100%, specificity=86.2%-99.9%). Oesophageal transit time of 3.9 mins will differentiate between OGJOO and achalasia (sensitivity=91.6%-100%, specificity=86.8%-99.95%).

Conclusion MIIT can differentiate patients with normal oesophageal motility and obstructive disorders. Therefore, there is a provision for using this method which is readily available during reflux monitoring as an alternative to barium swallow.

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P335

MULTICHANNEL INTRALUMINAL IMPEDANCE TRANSIT TESTING IN PATIENTS WITH FUNCTIONAL DYSPHAGIA

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Introduction Dysphagia symptoms cannot always be explained by endoscopy or radiology investigations and clinicians may refer their patients for high-resolution manometry (HRM) when suspecting motility related dysphagia. There are a cohort of patients for whom HRM also could not explain their dysphagia.

In this study, we perform the multichannel intraluminal impedance transit (MIIT) study to assess the oesophageal transit time (OTT) in patients with unexplained dysphagia.

Method Patients were selected between January 2018 and December 2019 who had normal oesophageal motility testing according to Chicago Classification (CC)¹ and underwent MIIT testing by drinking 200 mL of saline to measure the OTT.² Patients were then categorised into dysphagia group (patient group) and asymptomatic of dysphagia group (control group). The OTT of the patient group were compared to the

control group and also compared with the OTT findings for OGJ obstruction (>1.64 mins) which were previously published.²

All patient selected in this study had essentially normal endoscopy and radiology that could not explain patients' dysphagia.

Results Total of 76 patients were selected (F:M=49:27, aged 20–77 years old) and 51.3% (39/76) were complaining of dysphagia.

The 5%-95% confidence interval of OTT was significantly higher in the patient group compared to the control group (1.89 – 3.91 mins vs 0.32 – 0.41 mins, $p<0.0001$). The OTT in all 39/39 dysphagia patients exceeded the 95% of normal range (0.41 mins) and 59% (23/39) of dysphagia patients had OTT exceeding 1.64 mins which is comparable to the diagnosis of OGJ obstruction.²

Conclusion This study demonstrated MIIT testing to be a valuable complementary tool to assess patients' OTT and was able to explain patients' dysphagia. Majority of the dysphagia patients demonstrated OTT compatible to that of OGJ obstruction diagnosis.

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1. Kahrilas P, et al. *Neurogastroenterol Motil* 2015;27(2):160–174
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P336

MULTICHANNEL INTRALUMINAL IMPEDANCE TRANSIT IN PATIENTS WITH OBSTRUCTIVE DISORDERS

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Introduction We previously showed multichannel intraluminal impedance transit (MIIT) can be performed during a 24-hour pH-impedance monitoring to assess the oesophageal transit.¹ The oesophageal transit in patients' was not always assessed during the patient's fasting period to determine critical cutoff thresholds between normal and poor oesophageal transit. The current investigates the topic question.

Method Patients were selected between January 2018 and December 2019 who underwent two investigations in their fasting period:

- i. High-resolution manometry (HRM) with Chicago Classification diagnosis.¹
- ii. MIIT assessment with 200 ml of saline²

Based on [1], patients with normal HRM without dysphagia were grouped into control and dysphagia patients grouped into OGJ outflow obstruction (OGJOO) and achalasia.

Receiver operating curve (ROC) was plot to ascertain critical oesophageal transit time thresholds in normal motility and in patients with OGJOO and achalasia. The likelihood ratio (LR) for critical thresholds was computed and *t*-test & Fisher exact tests were employed appropriately to assess for statistical significance.

Results Total number of 117 patients were selected (F:M=74:43, age 18–84 years old). There was statistical significant differences in the oesophageal transit time between the control group compared with the OGJOO group ($p<0.0001$) and when compared with the achalasia group ($p<0.0001$).

Abstract P336 Table 1 oesophageal transit time (minutes) in control and patients groups

Group	N	Mean [median]	Standard deviation	5%-95%CI	Range
Control	38	0.37 [0.32]	0.14	0.32 – 0.41	0.15–0.78
OGJOO	40	2.53 [2.6]	0.88	2.26 – 2.81	0.73–3.90
Achalasia	42	37.7 [36]	21.12	34.4 – 47.3	5.6–84

Statistical differences were also found OGJOO and achalasia patient groups ($p<0.0001$). The descriptive statistical data can be found in table 1.

According to the ROC analysis, oesophageal transit time >0.76 mins will differentiate from normal to OGJOO disorder (sensitivity=91.2%-100%, specificity=86.2%-99.9%) (LR=38)($p<0.0001$). Oesophageal transit time of >3.9 mins will differentiate from OGJOO to achalasia (sensitivity=91.6%-100%, specificity=86.8%-99.95%)($p<0.0001$) (LR=40).

Conclusion MIIT can differentiate between normal oesophageal motility and patients with obstructive disorders. Therefore, there is a provision for using this method which is readily available during reflux monitoring.

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P337

EVALUATING MODERN REFLUX MONITORING METHODS WITH RESPECT TO MEDICAL THERAPY

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Introduction Multichannel impedance-pH monitoring (ZPM) and Bravo pH monitoring (BPM) are currently the gold-standard methods to objectively diagnose gastro-oesophageal reflux disease (GORD). BPM has shown to increase the diagnostic yield of GORD in patients with oesophageal hypersensitivity on ZPM¹ and in negative ZPM.²

This paper addresses the treatment response of GORD when diagnosed by ZPM and BPM methods.

Method This is a cross-sectional parallel study between August 2019 and September 2019 of a patient cohort who underwent ZPM or BPM methods (according to protocols³) and were treated with standard proton pump inhibitor (PPI) therapy for GORD diagnosis.^{4 5}

Patients scored the severity of their typical reflux symptoms (heartburn [HB], regurgitation [RG] & non-cardiac chest pain [NCCP]) on a visual analogue scale whilst off PPI therapy during the reflux monitoring and again on PPI therapy 4–5 weeks later. This was used to assess for positive treatment response (when symptom severity reduced by $\geq 50\%$), symptom eradication and no symptomatic changes. Appropriate χ^2 testing was employed to compare treatment response between reflux methods.

Results Total of 112 patients were selected based on ZPM-GORD diagnosis (F:M=40:29, age=24–79 years) and BPM-GORD diagnosis (F:M=32:11, age=23–76 years).