

contractions were premature in 5 patients (3 type II, 1 type III, 1 EGJ-OC). PDEM was successful (Richard score  $\geq 3$ ) in 42 patients (89%) at 5 months (100% in type I achalasia and EGJ-OC, 91% in type II and 53% in type III,  $p = 0.01$ ). No factor (age, baseline symptom severity, EGJ resting pressure, IHP before and after PDEM, post PDEM oesophageal contractions, PEP during 5-min water swallows or MWS, oesophago-gastric pressure gradient during MWS) was associated with PDEM failure at 5 months. Dysphagia, regurgitation and chest pain were reported by 49%, 27% and 22% of patients respectively 5 months after PDEM. Patients with regurgitation had a lower EGJ resting pressure before PDEM (12 vs 26 mmHg,  $p = 0.05$ ) and a higher post PDEM oesophago-gastric pressure gradient during MWS (4.7 vs 0.2 mmHg,  $p = 0.05$ ) compared to those without regurgitation. No parameter was associated with dysphagia or chest pain. **Conclusion:** While PDEM is associated with significant changes of oesophageal function as assessed with HRM, no manometric parameter but achalasia subtype was predictive of 5-month outcome. Further data are required to confirm that post PDEM oesophago-gastric pressure gradient during MWS might be associated with regurgitation.

251

#### Effect of bupropion in patients with ineffective oesophageal motility

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**Background:** Ineffective oesophageal motility (IEM) is the most frequently encountered oesophageal motility disorder, with limited treatment options. IEM is often of unknown etiology, but can also occur in systemic conditions (SC) with oesophageal involvement, such as scleroderma or related connective tissue disorders. Previous studies have suggested that bupropion, a 5-HT<sub>2A</sub> receptor agonist, enhances oesophageal peristalsis and lower oesophageal sphincter function in healthy volunteers and SC patients.

**Aim:** Our aim was to evaluate the effect of acute intake of oral bupropion on oesophageal motility, bolus transit and symptoms of dysphagia in patients with IEM, either idiopathic IEM or SC patients with IEM.

**Methods:** Eighteen patients (9M, 9F  $\pm 16$  years) fulfilling the Chicago Classification 3.0 criteria for IEM participated in this open-label, non-randomized single dose study. Combined oesophageal HRM investigation using a 36P16Z catheter with 5 bolus consistencies (liquid, semisolid and solid) was performed before and 20 min after oral intake of bupropion 2  $\times$  10 mg. Perception of bolus passage was evaluated with each swallow using a validated 6-point categorical scale.

Oesophageal contractile function was evaluated using the distal contractile integral (DCI), assessing distal oesophageal contractile vigor. Pressure-flow analysis was performed to perform an integrated analysis on simultaneously acquired oesophageal manometry and impedance recordings. Variables were compared using paired t-tests (parametric) or Wilcoxon signed rank test (non-parametric). A  $p$ -value  $< 0.05$  was considered significant.

**Results:** Nine hundred swallows of twelve patients with idiopathic IEM and six patients with SC-IEM were analyzed. Over all bolus consistencies, the DCI increased significantly after intake of bupropion from 208 [102–556] to 827 [40–728] mmHg.cm/s ( $p = 0.05$ ). This increase was

driven by the idiopathic IEM-group (idiopathic IEM: DCI 388  $\pm$  98 vs 470  $\pm$  118 mmHg/cm/s,  $p = 0.05$ ; SC-IEM: DCI 265  $\pm$  179 vs 525  $\pm$  167 mmHg/cm/s,  $p = 0.22$ ).

The TNIP, a measure of bolus movement in relation to oesophageal compression, significantly decreased after bupropion intake from 5.71  $\pm$  0.71 to 5.47  $\pm$  0.61 s ( $p = 0.04$ ), again driven by the idiopathic IEM group (5.69  $\pm$  0.74 vs 5.59  $\pm$  0.64 s,  $p = 0.03$ ). An increase in the number of normal perceived swallows was observed after bupropion intake (52% normal perception before intake of bupropion vs 60% normal perception after bupropion,  $\chi^2 [1] p = 0.04$ ).

**Conclusion:** Bupropion increases the amplitude of oesophageal contractions and decreases dysphagia symptoms in patients with (idiopathic) IEM.

252

#### Pressure flow analysis as a method to assess oesophageal function

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**Background & Aim:** Diagnostic evaluation of non-achalasia oesophageal dysphagia remains challenging because of a lack of a clear relationship between symptoms, oesophageal contraction patterns, and oesophageal bolus flow. Recently, pressure flow analysis (PFA), was developed to perform an integrated analysis on simultaneously acquired high-resolution impedance manometry (HRM) recordings. Previously, our group has shown correlation of these PFA metrics with perception of deglutitive symptoms in dysphagia patients and controls, linking HRM parameters with patient perception of oesophageal bolus hold-up. These unprospective results required further validation in a large patient population, and their ability to evaluate treatment outcomes needed to be studied.

**Methods:** A total of 151 dysphagia patients (57M, 53  $\pm$  15 years) underwent HRM using a 36P16Z catheter. Test boluses of 5–10 mL liquid, 5–10 mL semisolid, and 2–4 cm<sup>3</sup> solid were administered orally. Perception of bolus passage was evaluated with each swallow using a validated 6-point categorical scale. For comparison, 14 healthy volunteers were recruited with no prior history of digestive disease (10M, 26  $\pm$  6 years).

**Results:** We included 5 patients with Type I achalasia, 10 with Type II, 3 with Type III, 27 with EGJ outflow obstruction, 2 with distal oesophageal spasm, 1 with jackhammer oesophagus, 14 with absent contractility, 55 patients with ineffective oesophageal motility, and 18 patients with normal oesophageal motility according to Chicago Classification v3.0. All PFA metrics were significantly different between the three consistencies. Compared with healthy subjects, patients had higher PFI (4 vs 3 mmHg,  $p = 0.01$ ), higher PPI (51 vs 9,  $p = 0.000$ ), higher NI (270 vs 230 s/cm,  $p = 0.012$ ), higher IHP (106 vs 694 s/cm,  $p = 0.005$ ), and higher IR (0.40 vs 0.52,  $p = 0.000$ ). In patients, moderate to strong statistically significant correlations (all  $p < 0.0001$ ) between perception scores and following PFA metrics were found: PFI ( $r = 0.22$ ), IHP ( $r = 0.25$ ), IHP slope ( $r = 0.25$ ), TNIP ( $r = -0.28$ ), PPI ( $r = 0.29$ ), NI ( $r = 0.28$ ), and IR ( $r = 0.56$ ).

**Conclusion:** The results from this large patient cohort confirm pilot results, concluding that PFA metrics, which are altered in relation to bolus consistency, have added value as they link with patients' perception.

Combining the PFI with the IR in a PFA-matrix shows that our patients with dysphagia who have predominantly abnormal bolus clearance can be distinguished from patients with abnormal bolus flow assistance.

253

#### Body mass index is associated with erosive oesophagitis: a retrospective cohort study

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**Background/Aim:** Obesity has been recognized as a risk factor for GERD and several studies demonstrated positive association between the body mass index (BMI) and GERD symptoms. However, literature on whether BMI is related to the erosive oesophagitis are scant. This study aimed to investigate the effect of BMI change on the erosive oesophagitis.

**Methods:** A retrospective cohort study was performed to assess the natural course of erosive oesophagitis according to the changes in BMI. A total of 1126 cases of erosive oesophagitis were included in this study. The degree of erosive oesophagitis was measured by oesophago-gastroendoscopy and serially checked during the follow up period of 5 years. A Cox proportional hazards model was used to investigate the hazard ratio (HR) of oesophagitis. Patients with decreased BMI were associated with resolution of erosive oesophagitis compared to patients with increased BMI (Hazard ratio [HR] 1.17, 95% confidence interval [CI] 1.01–1.36). Even after adjusting for sex, age, smoking, alcohol consumption, and fatty liver status, the association between the BMI and erosive oesophagitis was not attenuated (HR 1.19, 95% CI: 1.03–1.38).

**Conclusion:** Resolution of erosive oesophagitis is potentially associated with the decrease in BMI and BMI was independently associated with erosive oesophagitis.

254

#### Dysphagia and postural orthostatic tachycardia syndrome patients

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**Background:** Postural orthostatic tachycardia syndrome (POTS) is a disorder characterized by defects in autonomic dysfunction. It is often associated with gastro-paresis and constipation but oesophageal symptoms have not been as well characterized.

**Aim:** We sought to characterize the symptoms and manometric findings in our POTS population.

**Methods:** In a retrospective observation study design, consecutive patients (pts) between 2014 and 2015 with POTS undergoing high resolution manometry (HRM) were included. Pts who did not have an autonomic reflex study (ARS) or HRM were excluded. HRM was performed with a solid state catheter with 36 circumferential pressure sensors spaced 1-cm apart. Oesophageal pressure topography plots of 10 single 5 mL liquid swallows were reviewed. Bolus transit was assessed for studies that included impedance measurements.

Peristalsis abnormalities were defined as weak if distal contractile integral (DCI) was  $> 100$ – $< 450$  mmHg cm/s or failed if DCI  $< 100$ . Incomplete bolus transit was defined