

PWE-130

HIGH RESOLUTION MANOMETRY DURING A STANDARDISED TEST MEAL AND FREE DRINKING

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Introduction Published reference values for oesophageal High Resolution Manometry (HRM) are available only for 5 ml water swallows in the supine position; however this is not representative of normal behaviour and rarely triggers symptoms. Analysis during and after eating a solid meal or drinking larger volumes is likely to increase the sensitivity of manometric studies to symptomatic oesophageal dysmotility and dysfunction. However this increases the complexity of pressure activity and, if it is to be applied in clinical practice, normal values for oesophageal motility and function are required.

Methods 10 healthy volunteers (6M:4F, age 20–45) underwent HRM (Manoscan 360, SSI; 36 sensors). After baseline measurements of the oesophago-gastric junction (OGJ) and standard 5 ml water swallows, volunteers were observed eating a test meal (cheese and onion pie; 500 Kcal, 34 g fat) followed by drinking a 200 ml fruit-smoothie (9/10 subjects) and for 10 min afterwards.

Physiologic measurements from HRM topographic plots focused on parameters that predict the success of solid bolus transport.

Results No subject had hiatus hernia or primary oesophageal dysmotility. All completed liquid swallows and standard meal (consumption time median 6:15 min (range 3:30–13:30 min)). A mean of 1.5 pharyngeal swallows (range 1–3) was required to propel each mouthful into the oesophagus. 20 swallows (range 13–34) were required to ingest the meal of which 89% were successful, 3% were simultaneous (focal spasm) and 5% failed. The median (IQR) for intrabolar pressure (IBP) increased from 8.9 (6.7–13.8) mm Hg for 5 ml water to 18.9 (16.8–24.0) mm Hg for solid meal swallows ($p < 0.001$). Normal values for key parameters are presented in the table 1.

A mean of 20 swallows (range 13–34) was required to drink the smoothie. Complete suppression of oesophageal contractility was achieved in 7/9 subjects. A powerful postcontraction was observed in 8/9 subjects. Apart from postprandial belching, no volunteer reported symptoms during or after the study.

Conclusion Peristaltic coordination and pressure increased in response to resistance to bolus passage (raised IBP) with solid compared to liquid swallows. Complete oesophageal relaxation and LOS opening was observed on free drinking. Reference values for future studies are presented to assess the clinical utility of including a standardised meal and free drinking in HRM investigation of patients with oesophageal symptoms.

Competing interests RS, Grant/Research Support from Given Imaging and Reckitt Benckiser; AA, None declared; TW, Grant/Research Support from Given Imaging; MF, Grant/Research Support from Given Imaging, AstraZeneca, Movetis, Consultant for Reckitt Benckiser.

Keywords high resolution manometry.

Table 1 PWE-130

	Proximal transition zone length (break in peristalsis at 30 mm Hg)		Integrated relaxation pressure (mm Hg)		Contractile front velocity (cm/s)		Distal contractile integral (mm Hg-cm-s)	
	Liq	Meal	Liq	Meal	Liq	Meal	Liq	Meal
Median (IQR)	3.2 (1.9–7.4)	0.5 (0.4–1.0)	5.9 (3.2–7.0)	6.7 (5.9–8.3)	3.6 (3.1–4.4)	2.2 (2.9–2.8)	734.4 (478.3–1366.0)	1724.0 (1351.7–2907.7)
p Value	0.004		0.485		0.082		0.015	