Abstract P235 Table 1 Variability components in assessment of construct validity of assessment tools using Generalizability theory

Component	ER		RFA	
	Variance Component	% Variance	Variance Component	% Variance
Operators (Vo)	1.1 x10^{-17}	<0.1%	5.7 x10^{-14}	<0.1%
Cases (Vc:o)	0.282	45.0%	0.109	31.5%
Assessors (Va)	0.052	8.3%	0.031	9.0%
Assessors x operators (Vo:a)	0.055	8.7%	(*)	(*)
Unexplained (Vca:o)	0.239	38.0%	0.206	59.5%

(*) Unable to calculate due to model fitting problems

Results Data on a minimum of 45 videos per procedure were available for analysis. The mean (± standard deviation) competency scores were 3.4 (0.8) and 3.7 (0.6) for ER and RFA, respectively. The variability components for the analysis are detailed in table 1. Variation in scores between operators, assessors, and assessors across different operators was small accounting for <10% of the total variation suggesting good reliability. The majority of variance was explained by variation in cases or unexplained.

Conclusions The DOBES assessment tools for ER and RFA appear to have good content and construct validity and were produced based on evidence and expert opinion. The analysis shows agreement on scores between expert assessors which strengthens the case for its adoption into clinical practice.

P236 ODYNOPHAGIA – IS IT A SYMPTOM WORTHY OF URGENT GASTROSCOPY?

Rajan N Patel*, Ralph Canda, Kalpesh Besherdas. *The Royal Free London NHS Trust, London, UK*

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Introduction Odynophagia is defined as a painful sensation in the oesophageal region that occurs in relation to swallowing. Endoscopy is the gold standard investigation for the diagnosis of mucosal lesions in the oesophagus. Unlike dysphagia, which has historically been an alarm symptom of oesophageal cancer, odynophagia does not form part of the suspected upper gastrointestinal (GI) cancer referral in the UK.

Methods We aimed to compare the cancer detection rate of odynophagia to the standard 'red flag' indications for gastroscopy. We performed a retrospective analysis of all patients who underwent upper GI endoscopy for upper GI 'two-week-wait' (2WW) criteria and compared this with odynophagia over a 14-year period (2005–2019) at a tertiary London-based hospital Trust. Data was obtained from the Unisoft Endoscopy reporting software. The findings at endoscopy for all indications were scrutinised.

Results During the study period, a malignant oesophageal tumour was identified in 21 patients (4%) endoscoped for odynophagia (total 530 patients endoscoped for odynophagia). This compared to Anaemia (17936 endoscoped and 94 tumours identified (0.5%)); Dysphagia (10954 endoscoped and 562 tumours identified (5%)); Nausea and vomiting (N&V) (6380 endoscoped and 64 tumour identified (1%)); Weight loss (6157 endoscoped and 119 tumours identified (2%)).

Abstract P236 Table 1 Indication for gastroscopy and percentage of cancers detected

Indication for gastroscopy	Number of endoscopies	Malignant tumour identified (%)
Odynophagia	530	4
Dysphagia	10954	5
Anaemia	17936	0.5
Nausea/Vomiting	6380	1
Weight loss	6157	2

Of the 530 patients who were endoscoped for odynophagia during the study period, 240 (45%) had oesophageal mucosal lesions: Reflux oesophagitis 193 (36%); Barrett's oesophagus (26 (5%); Malignant tumour 21 (4%). 32 (6%) had an oesophageal stricture.

Conclusion From this study, almost half of patients endoscoped for odynophagia have a positive endoscopic mucosal abnormality. 4% of patients endoscoped for odynophagia had oesophageal cancer compared with 5% of dysphagia patients. Anaemia (0.5%), weight loss (2%) and N&V (1%) all have inferior cancer pick up rates. We recommend that odynophagia be re-classified as an ´alarm symptom´ and those presenting with this significant symptom undergo an urgent upper GI endoscopy to define the exact mucosal abnormality and exclude oesophageal cancer.

P237 ACCURACY OF THE PPI TEST FOR REFLUX DISEASE DIAGNOSIS: COMPARISON WITH WIRELESS PH STUDY DATA

[1]Radu Rusu*, [2]Philip J Woodland, [1]Sebastian Zeki, [1]Jafar Jafari, [3]Mark Fox, [1]Terence Wong. *[1]Guy's and St Thomas' NHS Foundation Trust, London, UK; [2]Barts and The London School of Medicine and Dentistry, London, UK; [3]Center for Integrative Gastroenterology, Arlesheim, Switzerland*

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Introduction Proton pump inhibitors (PPIs) are widely prescribed for gastro-oesophageal reflux disease (GORD) symptoms. The 'PPI test' is frequently used in lieu of formal testing. It has been shown previously that, with 48 hr pH monitoring, a 2-week PPI trial has limited accuracy for GERD diagnosis. However, it is possible that restricting to 48 hrs pH monitoring could 'miss' true GERD diagnoses, and a 2-week PPI trial may not be long enough for adequate symptom relief. We aimed to assess the accuracy of response to an 8-week PPI trial in diagnosis of GERD when using 96 hr pH monitoring as gold standard.

Methods We first established 96 hr normal values in a cohort of 47 asymptomatic healthy volunteers (age 28.2±8.9 years, 65.9% F). Upper limits of normal were defined as 95th percentile values for mean total acid exposure, worst day acid exposure, and mean DeMeester score. We studied 86 patients (age 48.4±13. years, 71.7% F) for testing of troublesome heartburn symptoms. All patients completed a RESQ-7 questionnaire off PPI, then had wireless pH capsule investigation for 96 hrs. Total acid exposure%, worst day acid exposure% and mean DeMeester score were recorded and compared to our normal values. After completion of the investigation all patients started PPI, at least standard dose, for 8 weeks. At 8 weeks the RESQ-7 was repeated. Percentage improvement in

heartburn intensity at 8 weeks compared to baseline was measured. A successful PPI response was defined as >50% improvement in heartburn intensity at 8 weeks compared to baseline.

Results Normal value cutoffs were determined as 3.0% for mean acid exposure, 4.5% for worst day acid exposure, and 9.2 for mean DeMeester score. There was no difference in% heartburn improvement after 8 weeks PPI between patients with pathological and physiological acid exposure whether pathological reflux was determined by mean acid exposure (heartburn improvement 33.8%+36.6 vs. 26.6%+33.8, mean +s.d, p=0.4), worst day acid exposure (32.1+39.4 vs. 25.8 +34.7, p=0.6), or by mean DeMeester score (33.7+36.3 vs. 26.5+35.6, p=0.4). Successful PPI response had a 77.5% positive predictive value for GORD, and only a 38.3% negative predictive value.

Conclusions Wireless pH study parameters in a large group of patients with heartburn referred for reflux testing show that PPI response is inadequate to make a diagnosis of reflux disease. Our data show that a large number of patients referred despite PPI response do not have reflux disease and should be weaned from the medication. An even larger proportion of patients do not have PPI response yet have pathological reflux and could be offered alternate management strategies.

P238 AUTOFLUORESCENCE-TARGETED CONFOCAL ENDOMICROSCOPY VERSUS WHITE-LIGHT FOR BARRETT'S OESOPHAGUS DYSPLASIA DETECTION: A MULTI-CENTRE RANDOMISED CROSS-OVER STUDY

[1,2]Mathew Vithayathil*, [2]Ines Modolell, [3]Jacobo Ortiz, [1,2]Wlad Januszewicz, [1,2]Apostolos Pappas, [1]Michele Bianchi, [2]Geoffrey Roberts, [3]Samantha Warburton, [3]Phillip Kaye, [1,2]Andreas Hadjinicolaou, [1,2]Maria O'Donovan, [3]Prof Krish Ragunath, [1]Lorenz Wernisch, [1,2]Massimiliano Di Pietro. *[1]MRC Cancer Unit, Cambridge, UK; [2]Cambridge University Hospitals, UK; [3]NIHR Nottingham Biomedical Research Centre, UK*

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Introduction Dysplasia in Barrett's oesophagus (BO) is often invisible at white light endoscopy (WLE) and Seattle protocol is labour intensive. There is lack of randomised evidence that advanced imaging improves dysplasia detection. Probe-based confocal endomicroscopy (pCLE) is accurate for high-grade dysplasia (HGD) and intramucosal cancer (IMC) associated to visible lesions, but due to the narrow field requires combination with a red-flag technique for long-segment inconspicuous BO. We aimed to assess the diagnostic accuracy of optical biopsy by pCLE targeted by autofluorescence imaging (AFI) for any grade of dysplasia in patients without visible lesions.

Methods In this prospective multi-centre randomised cross-over trial BO patients were randomised to WLE with Seattle protocol (standard arm) https://mail.addenbrookes.nhs.uk/owa/auth/logon.aspx?replaceCurrent=1&url=https%3a%2f%2fmail.addenbrookes.nhs.uk%2fowa%2 for AFI-directed pCLE (experimental arm), and crossed over to the other arm after 6–12 weeks. The experimental arm consisted of (i)WLE inspection (ii)AFI to flag endoscopic areas (iii)pCLE on AFI areas and (iv)targeted biopsies. The 6 endoscopists were blinded to referral histology. Patients with unequivocal neoplastic lesions on WLE were excluded. Two GI pathologists confirmed histological diagnoses. The primary outcome was real-time diagnosis of dysplasia by pCLE. Two histological endpoints were analysed: (a) trial histology from all study biopsies; (b) overall histology, which included (a) + biopsies within the 12 months of enrolment. Secondary outcomes included procedural time.

Results 133 patients completed both arms. 27.8% of patients received a diagnosis of dysplasia (LGD; n=19, HGD/IMC; n=18). In primary analysis (trial histology), pCLE had a sensitivity and specificity for dysplasia of 73.0% and 68.8%, respectively and 72.2% and 61.7% for HGD/IMC. Seattle protocol had a sensitivity of 73.0% for dysplasia and 83.3% for HGD/IMC, with no significant difference between arms. In secondary analysis (overall histology), pCLE had a similar sensitivity to Seattle protocol for dysplasia (61.8% vs. 49.1%; p=0.09) and HGD/IMC (70.0% vs 50.0%; p=0.11). The procedural time in the experimental arm was longer than standard arm (*Mean* mins 22.3 vs. 16.4; p<0.05), with evidence of learning curve (Q4 vs Q1 27.0 vs 19.0; p<0.05).

Conclusions In combination with AFI, pCLE detects inconspicuous dysplasia in approximately three quarters of cases. pCLE has equal diagnostic accuracy for dysplasia compared to Seattle protocol dispensing extensive sampling but at expense of longer procedural time.

P239 X-RAY PHASE CONTRAST IMAGING FOR STAGING OESOPHAGEAL TUMOURS: PRELIMINARY RESULTS FROM THE VIOLIN STUDY

[1,2]Paul Wolfson*, [1]Charlotte Maughan-Jones, [1]Jinxing Jiang, [1,2]Alexander Ho, [1,2]Hazel McBain, [2]Harry Delaney, [2]Adam Levine, [2]Mark Hawthorne, [1]Lorenzo Massimi, [1]Ash Wilson, [1,2]Khaled Dawas, [1,2]Borzoueh Mohammadi, [2]Yassar Qureshi, [2]Majid Hashemi, [1,2]Matthew Banks, [1,2]David Graham, [1,2]Rami Sweis, [1,2]Rehan Haidry, [1,2]Sarmed Sami, [1]Marco Endrizzi, [1]Peter Munro, [1]Charlotte Hagen, [1,2]Manil Chouhan, [1]Stuart Taylor, [1,2]Marco Novelli, [1]Alessandro Olivo, [1,2]Laurence Lovat. *[1]University College London, London, UK; [2]University College London Hospital, London, UK*

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Introduction Oesophageal cancer is the 7th commonest cause of cancer death worldwide. Radiological staging of local oesophageal cancer is inaccurate. CT currently relies on attenuation of x-rays to generate contrast. Soft tissues have very similar attenuation properties so minimal contrast is generated.

X-ray phase contrast imaging (XPCI) uses refraction of x-rays as they pass through tissue instead of attenuation and provides much higher soft tissue contrast. This technology can be tuned to a resolution of approximately 10 μm. This may allow for easy assessment of extent of disease infiltration.

We aimed to use XPCI to image oesophagectomy specimens to assess pathological tumour and nodal stage for oesophageal cancer

Methods Following ethical approval, 10 oesophagectomy specimens were obtained from patients having surgery for oesophageal cancers. These included both squamous and adenocarcinomas.

Specimens were fixed in formalin for 12 hours. Sutures were placed through tissue to enable co-registration between CT slices and histology sections. For some scans, tissue was then dehydrated with graded ethanol for between 4.5 hours and 72 hours before being imaged. A Rigaku (MicroMax 007) xray source was used at 40 kV and 20 mA; a detector with 50μm pixel size; and sample and detector masks made of graphite substrate with gold overlay. Phase contrast was generated using edge illumination technique.