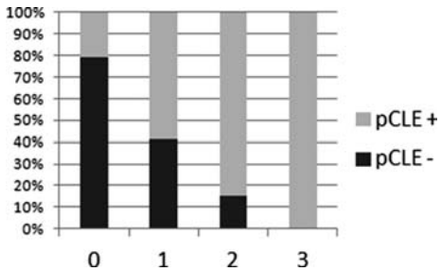

Abstract OC-017 Figure 1 Correlation between pCLE and biomarkers. X-axis: number of positive biomarkers

AFI+ areas, followed by random biopsies as per Seattle protocol. pCLE sequences were graded according to published criteria. Cyclin A and p53 expression were assessed by immunohistochemistry and aneuploidy by flow-cytometry on AFI-targeted biopsies. Statistical analyses were performed using chi-square test.

Results AFI-targeted pCLE correctly classified all the HGD/EC patients and had a sensitivity and specificity for any grade of dysplasia of 93 and 83%, respectively. The Seattle protocol had similar sensitivity for HGD/IMC and any grade of dysplasia (83 and 89%, respectively). For the per-location analysis, a total of 155 endoscopic areas were analysed with pCLE and molecular biomarkers. pCLE had a sensitivity and a specificity for HGD/IMC and any grade of dysplasia of 100/64% and 78/75%, respectively. Overall, 40% of pCLE irregular sequences corresponded to non-dysplastic areas (false positive). We found a statistically significant enrichment ($p < 0.001$) of the three molecular biomarkers in pCLE irregular areas (Figure 1). After exclusion of dysplastic areas, a significant correlation between pCLE irregularity and biomarker positivity was retained ($p = 0.008$). The presence of at least 1 positive biomarker significantly correlated with dysplasia both in pCLE irregular ($p = 0.01$) and pCLE regular areas ($p = 0.05$).

Conclusion AFI-targeted pCLE has a high diagnostic accuracy for dysplasia in BO. Tissue biomarkers are a useful adjunct to characterise the field of molecular abnormality associated with optical dysplasia. These results suggest that the presence of pCLE irregularity, even in the absence of histological dysplasia, relates to molecular changes and may warrant close follow up.

Disclosure of Interest None Declared.

OC-018 GASTRIN INCREASES MIR-222 EXPRESSION IN GASTRIC EPITHELIAL CELLS *IN VITRO* AND HYPERGASTRINAEMIC INS-GAS MICE IN VIVO

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10.1136/gutjnl-2014-307263.18

Introduction Gastric adenocarcinoma occurs in some patients who are infected with *Helicobacter pylori*. Gastrin is a cofactor in gastric carcinogenesis and elevated serum concentrations are found in the preneoplastic condition atrophic gastritis. MicroRNAs (miRNAs) are small non-coding RNAs that post transcriptionally regulate numerous mRNAs and play critical roles in cell physiology. Previous studies have suggested that *H.pylori* infection dysregulates miRNAs to control gastric inflammation, cell cycle progression, apoptosis and cell survival. We hypothesised that gastrin would also induce alterations in gastric miRNAs and that these may influence cancer development.

Methods Human gastric adenocarcinoma cells that have been stably transfected with the human CCK2 receptor (AGS_{GR}) were treated with 0.1–100 nM gastrin for 2–48 h. Small RNAs were isolated and reverse transcribed using the Qiagen miScript PCR system kit. miRNA expression profiling was determined by qPCR using miScript PCR arrays (in triplicate) and further validated using miRNA primer assays (in quadruplicate). Cycle passing threshold (Ct) was normalised to RNU62 expression and miRNA relative expression calculated using $\Delta\Delta C_T$ method. miR-222 levels were measured in gastric mucosal scrapings from 10 week old male and female ($n = 3$ per group) wild-type FVB/N mice and transgenic hypergastrinaemic INS-GAS mice on the same genetic background. Comparisons were made using unpaired t-tests with Bonferroni correction, $P < 0.05$ was considered significant.

Results miR-376c and miR-222 were significantly overexpressed in gastrin treated AGS_{GR} cells, by 5.2-fold [$p < 0.01$] and 2.3-fold [$p < 0.0001$] respectively. However only the increase in miR-222 expression was confirmed using qPCR. Maximal increased expression of miR-222 (9-fold [$p < 0.01$]) was seen after 10 nM G17 treatment for 24 h in serum free media. Increased miR-222 expression was completely reversed by pre-treatment with the CCK-2 receptor antagonist YM022 (100 nM). miR-222 expression was also significantly increased in 10 week old female and male INS-GAS mice, compared with FVB/N mice (by 5.3-fold and 2.3-fold respectively).

Conclusion Gastrin induces gastric miRNA alterations, specifically miR-222 overexpression, both *in vitro* and *in vivo*. This was fully reversed by pre-treatment with YM022 *in vitro*. Since miR-222 overexpression has previously been linked to decreased expression of tumour suppressor proteins such as $p27^{Kip1}$ and increased oncogenesis, these data support the hypothesis that elevated gastrin may induce pathological changes via disruption of miRNA (particularly miR-222) expression. Further studies are needed to determine the mechanisms by which gastrin-induced miR-222 overexpression affects gastric pathology.

Disclosure of Interest K. Lloyd Grant/research support from: Trio Medicines Ltd, A. O'Hara: None Declared, A. Varro Grant/research support from: Trio Medicines Ltd, D. Pritchard Grant/research support from: Trio Medicines Ltd.

OC-019 OPTIMISING THE PERFORMANCE OF MAGNETIC ASSISTED CAPSULE ENDOSCOPY (MACE) OF THE UPPER GI TRACT USING CT MODELLING

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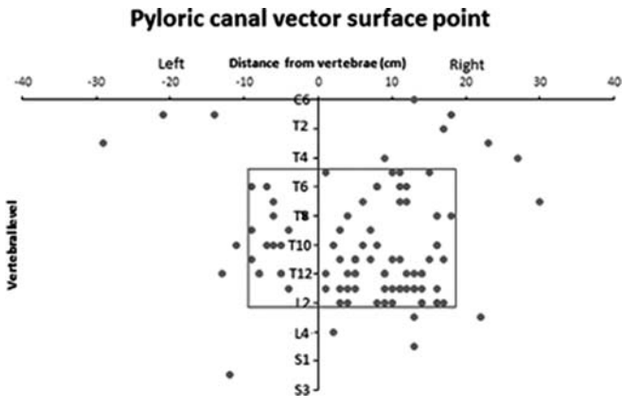
10.1136/gutjnl-2014-307263.19

Introduction Capsule endoscopy, employed to investigate the small bowel, is now being further developed to visualise the upper GI tract. In a pig model, using a hand held magnet, we have demonstrated that magnetic assisted capsule endoscopy (MACE) in the stomach is feasible. However, it is unclear what the best methodology is to achieve complete gastric luminal views in humans. Our aim was to utilise CT modelling of the abdomen to determine the optimal placements of a capsule endoscope in the stomach to allow complete mucosal visualisation and to determine the optimal placement of the hand held magnet to aid pyloric traversing.

Methods Using multiplanar reformatting, 100 good quality contrast abdominal CT scans were analysed to assess luminal visualisation by a magnetic capsule endoscope from 5 fixed stations throughout the stomach. From each station, we assessed the

Abstract OC-019 Table 1

Station	Cardia (%)	Fundus (%)	Body (%)	Incisura (%)	Antrum (%)	Pylorus (%)
Fundal dependent + antral dependent	87	99	99	100	100	45
Fundal dependent + opposite antral dependent	92	99	99	100	100	86



Abstract OC-019 Figure 1

ability of a capsule endoscope to visualise 6 anatomical landmarks (cardia, fundus, body, incisura, antrum and pylorus). Success of visualisation of an anatomical area was only accepted when >90% mucosal visualisation was achieved from a particular station. The pyloric canal angles were calculated to create a vector. We mapped the position of this vector on the patient's skin (pyloric canal vector surface point) to determine the optimal placement of the magnet that would allow traversing of the capsule endoscope through the pylorus.

Results There were 65 female and 35 male patients. Mean age of patients was 53 years (s.d+/-18 years). Best mucosal visualisation of the stomach landmarks was achieved from 3 stations; fundal dependant, antral dependent and opposite the antral dependent points. Maximal visualisation of the whole of the stomach, required combining 2 stations as shown in Table 1.

The box in the figure shows the placement of the magnet in the upper back towards the right loin would allow pyloric traversing of the capsule endoscope in 83% of cases. Increasing age ($p = 0.03$) and inability to view the pylorus ($p = 0.04$) were predictors of being outside the box.

Conclusion CT modelling has provided important data regarding the optimal stations in the stomach to position a magnetic capsule endoscope to allow maximal luminal mucosal visualisation and traversing the pylorus. Although there is some extreme variation in the upper GI anatomy, the majority of cases will allow the use of a single standard method in performing MACE which may be very useful for screening purposes.

Disclosure of Interest None Declared.

OC-020 COMPARATIVE EFFECTIVENESS OF NOVEL TECHNIQUES FOR BARRETT'S OESOPHAGUS (BO) SCREENING IN THE COMMUNITY: A PROSPECTIVE RANDOMISED TRIAL

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10.1136/gutjnl-2014-307263.20

Introduction BO is the strongest precursor of oesophageal adenocarcinoma. Participation patterns and effectiveness of BO community screening using unsedated transnasal endoscopy (uTNE) is unknown. Feasibility of mobile van screening closer to home is also unknown. We aimed to assess the effectiveness of this technique compared to sedated endoscopy (SE).

Methods A population cohort ≥50 years of age, with no history of endoscopic evaluation, was identified from a group of subjects who previously completed a validated symptom questionnaire. Patients were randomised (stratified by age, sex and reflux symptoms) and invited to undergo either uTNE in a mobile research van (muTNE), uTNE in outpatient endoscopy suite (huTNE) or SE. uTNE was performed using a portable oesophagoscope with a disposable sheath. Procedure performance characteristics and validated tolerability scales (0 = none and 10 = severe) were recorded.

Results 459 subjects were contacted and 209 (46%) agreed to undergo study procedures (muTNE n = 76, huTNE n = 72, SE n = 61). Baseline characteristics were comparable among the three groups.

Participation rates were numerically higher in the unsedated arms (muTNE 47.5%, huTNE 45.7%) than in the SE arm (40.7%) ($p = 0.27$). Patients with acid reflux symptoms ≥1/week were more likely to participate (odds ratio 2.94, 95% confidence interval 1.47, 5.88).

Complete evaluation of the oesophagus was comparable using muTNE (99%), huTNE (96%) and SE (100%) techniques. Successful biopsy acquisition was lower in the muTNE (79%) and huTNE (83%) groups compared to SE (100%) ($p = 0.001$).

Mean duration (minutes) of examination was shorter in the SE arm (4.7) than in muTNE (8.0) and huTNE (8.5) groups ($p < 0.001$). However, recovery time was much longer for SE (67.3) compared to muTNE (15.5) and huTNE (18.5) techniques ($p < 0.001$).

While overall tolerability for SE was better than muTNE and huTNE (mean score 0.4 vs. 1.9 and 2.2 respectively, $p < 0.001$), the majority of patients who underwent muTNE and huTNE were willing to undergo the same procedure again in future (79% and 83%, respectively). No serious adverse events were reported. 16 subjects (7.6%) were diagnosed with BO.

Conclusion In this first large randomised trial evaluating novel approaches for community screening for BO, unsedated mobile van and clinic screening with TNE was feasible and effective. The patients' visit was significantly shorter with adequate tolerability, acceptability and safety profiles. Mobile and outpatient techniques may provide a cost-effective alternative to SE for BO screening.

Disclosure of Interest S. Sami: None Declared, K. Dunagan: None Declared, M. Johnson: None Declared, C. Schlek: None Declared, A. Zinsmeister: None Declared, L. M. Wong Kee Song: None Declared, K. Wang: None Declared, D. Katzka: None Declared, K. Ragunath Grant/research support from: Olympus (keymed, UK) and Intromed Ltd. (Seoul, South Korea), P. Iyer: None Declared.

OC-021 GASTRIC ULCER FOLLOW-UP: THE IMPACT OF NICE GUIDELINES

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10.1136/gutjnl-2014-307263.21

Introduction While the National Institute for Health and Care Excellence (NICE) recommends a follow-up gastrocopy