

Neurogastroenterology

P323 OGJ-CI COMPLEMENTS REFLUX DISEASE SEVERITY AND GIVES INSIGHT INTO THE PATHOPHYSIOLOGY OF REFLUX IN BARRETT'S

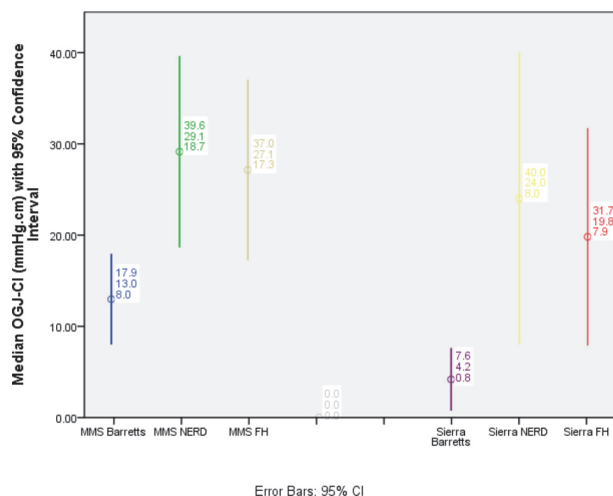
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10.1136/gutjnl-2020-bsgcampus.397

Introduction Oesophago-gastric junction contractile integral (OGJ-CI) is a novel parameter that assesses barrier function during high resolution manometry (HRM); however it has not yet come into routine clinical use. We assessed OGJ-CI values across three common presentations of reflux; Barrett's oesophagus, NERD and functional heartburn (FH), to determine how OGJ-CI complements disease severity. Analysis was replicated across 2 common HRM systems and catheter types in consecutive patients.

Methods Consecutive HRM studies between 2014 and 2020 were collected from a tertiary referral unit in London; 63 patients (21 Barrett's, NERD and FH each) used a water-perfused catheter (Medical Measurement System, Netherlands) and 48 patients (16 Barrett's, NERD and FH each) used a solid state catheter (Sierra Scientific Instruments, USA). OGJ-CI was calculated using the distal contractile integral (DCI) tool over 3 respiration cycles at 30 mmHg isobaric contour. DCI of the oesophageal body was used as a measure of peristaltic effectiveness. Manometry was followed by 24 hour catheter-based pH monitoring to measure acid exposure time (AET) and is presented as (median; interquartile range).

Results AET was greatest in patients with Barrett's (14%; 5.8–23.6%) followed by NERD (9.3%; 5.8–13.6%) and FH (1.9%; 0.8–2.8%) ($p < 0.0001$). Similar OGJ-CI and DCI pressure trends were seen across both manometry systems and catheter types. There was no statistical difference in OGJ-CI between NERD and FH (Sierra $p = 0.9$; MMS $p = 0.614$). On the other hand, OGJ-CI was significantly lower in patients with Barrett's compared to NERD and FH (Sierra: $p = 0.014$; MMS: $p = 0.017$) (figure 1).



Abstract P323 Figure 1 OGJ-CI across 3 presentations of reflux, using MMS and Sierra

Similarly, DCI was higher in NERD (Sierra 659 mmHg.s.cm; MMS 588 mmHg.s.cm) and FH (Sierra 1202 mmHg.s.cm; MMS 736 mmHg.s.cm) (Sierra $p = 0.032$; MMS $p = 0.414$), while in Barrett's, DCI was significantly lower (Sierra 417 mmHg.s.cm; MMS 198 mmHg.s.cm) (Sierra $p = 0.002$; MMS $p < 0.0001$). A weak negative correlation was observed between Barrett's length and OGJ-CI ($r = -0.18$, $p = 0.5$).

Conclusion OGJ-CI correlates well with acid reflux burden but the mechanism differs between reflux disease states; OGJ-CI integrity is the same between NERD and FH but markedly reduced in Barrett's. The same pattern is replicated with DCI as a measure of peristaltic effectiveness. This pattern is similar across two of the most commonly used HRM systems and is independent of catheter characteristics. This study suggests that in Barrett's, disruption of OGJ anatomy may result in an increased volume of reflux compounded by reduced peristalsis effectiveness and clearance of refluxate, whereas in NERD the increased frequency of reflux is more likely to be cleared by an intact peristaltic contraction.

P324 MEAN NOCTURNAL BASELINE IMPEDANCE CORRELATES WITH REFLUX DISEASE SEVERITY BUT NOT SYMPTOMS

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Introduction The Lyon Consensus 2018 describes nocturnal baseline impedance (MNBI) as a reflection of oesophageal mucosa permeability, with lower values found in erosive than non-erosive reflux disease (NERD); however it is not clear how MNBI correlates with symptoms. This study aims to determine the relationship of MNBI across three common presentations of reflux; Barrett's oesophagus, NERD and functional heartburn (FH).

Methods Between 2014 and 2020, pH-Impedance measurements and symptom index (SI) were collected for 37 consecutive patients with at least 3 cm of Barrett's oesophagus (13 on and 24 off proton pump inhibitors; PPI). 37 consecutive patients with NERD and 37 with FH were also included for comparison. MNBI was calculated from sensors at 3 and 5 cm above the LOS over 3×10 minute intervals during the nocturnal period.

Results There was a significant difference in median acid exposure time (AET) between the 3 subgroups; Barrett's (14.0% (6.3%, 23.5%), NERD (8.9% (5.6%, 13.5%) and FH (1.9% (0.7%, 2.7%)) ($p < 0.001$). AET was greater in patients with Barrett's off PPIs (median AET 16.9% (11.4%, 27.7%)) than on PPIs (8.9% (2.3%, 14.7%)) ($p < 0.01$). Barrett's patients reported the fewest symptoms (7.5; 0–24) ($p = 0.047$), whereas FH (13.5; 6–28) and NERD (15; 6–41) were similarly more symptomatic ($p = 0.660$). On the other hand, NERD patients were more likely to have a positive SI (12/37; 32.4%), followed by Barrett's (7/37; 18.9%) and FH (1/37; 2.7%) ($p = 0.002$). Similarly, the median SI for NERD was highest (32.3%; 6.4–54.5%) compared to Barrett's (6.25%; 0–38%) and FH (0%; 0%, 8.2%) ($p < 0.0001$).

MNBI was low in Barrett's compared to NERD and FH (figure 1; $p < 0.0001$). The 13 Barrett's patients studied on PPI with proven adequate acid suppression ($AET \leq 6.0$), continued to exhibit a low MNBI which was similar to the 24 Barrett's