Esophageal Junction Outflow Obstruction Is Associated With Impaired Bolus Clearance Compared to Controls

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INTRODUCTION: The manometric diagnosis of esophageal junction outflow obstruction (EGJOO) can be challenging and not indicate true functional obstruction at the lower esophageal sphincter (LES). The aim of our study was to identify the presence of impaired esophageal bolus clearance in patients with EGJOO diagnosed via high-resolution manometry (HRM), and compare to a group controls (patients with normal HRM studies) who presented with dysphagia and similar symptoms.

METHODS: 12 months of High-Resolution Impedance Manometry (HRIM) results at a large academic center (Wake Forest Baptist Medical Center) were reviewed. Studies diagnostic for EGJOO based on the Chicago Classification of Esophageal disorders (CCv3) were identified. In the group of patients with EGJOO, those with impaired bolus clearance were identified. Impaired bolus clearance was defined as patients with bolus clearance <80%. As a control, a group of HRM labeled as normal studies were also identified. Incidence of impaired bolus clearance in this group was also recorded, and later compared to that of the EGJOO group.

RESULTS: After reviewing the HRM results, 121 patients were found to have HRM consistent with the diagnosis of EGJOO. Another 121 patients were identified as having normal manometries. Using the criteria for impaired bolus clearance (<80%), each group was divided into normal vs impaired clearance. In the EGJOO group, 64 (52.9%) patients were found to have impaired clearance, vs 57 (47.1%) which had normal bolus clearance. This was compared to the normal HRM group, where 16 (13.2%) were found to have impaired bolus clearance, while 105 (86.8%) were found to have normal bolus clearance. Using a chi square calculation, results were found to be significant (P < 0.01). Table 1 summarizes demographics. Table 2 summarizes the bolus clearance data.

CONCLUSION: Patients with EGJOO diagnosed with HRM were found to have significantly impaired bolus clearance compared to normal subjects. Abnormal liquid bolus transit on impedance analysis may be a useful measure to define clinically significant outflow obstruction. Further investigation of these patients’ subsequent studies, such as timed barium esograms, is warranted to fully assess esophageal emptying.

[402] Table 1. Demographics

<table>
<thead>
<tr>
<th></th>
<th>Normal HRM</th>
<th>EGJOO</th>
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</thead>
<tbody>
<tr>
<td>Total Number</td>
<td>121</td>
<td>121</td>
</tr>
<tr>
<td>Avg. Age</td>
<td>55.2</td>
<td>56.1</td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>Female</td>
<td>91</td>
<td>90</td>
</tr>
<tr>
<td>Avg. BMI</td>
<td>25.9</td>
<td>25.0</td>
</tr>
</tbody>
</table>

[402] Table 2. Results

- Normal Clearance: 105 vs 57
- Impaired Clearance: 16 vs 64

S0404

Inverse Association Between H. pylori and Esophageal Adenocarcinoma but No Difference in H. pylori Prevalence Between Barrett’s Esophagus and Esophageal Adenocarcinoma—A Systematic Review and Meta-Analysis

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INTRODUCTION: The prevalence of H. pylori (HP) is known to be reduced in patients with GERD and Barrett’s Esophagus (BE) compared to population controls without GERD. However, the prevalence of HP does not differ between GERD patients and BE patients, implying that H. Pylori does not influence progression of GERD to BE. We have conducted a systematic review and meta-analysis of the prevalence of HP in population controls compared to patients with Esophageal Adenocarcinoma (EAC). Additionally, we have compared HP prevalence in population controls compared to BE patients to EAC patients.

METHODS: The MEDLINE, Ovid and Web of Science databases were searched starting in 1988 to 2019. The literature search was conducted using the terms “helicobacter pylori” or “h pylori” or “HP” and “esophageal neoplasms or adenocarcinoma” or “EAC” or “esophageal adenocarcinoma or cancer” or “EGJ adenocarcinoma” or “EGJ cancer.”

RESULTS: Literature search revealed 3485 studies, and 284 abstracts were reviewed based on the title. Based on the abstract review 35 full text articles were reviewed and 14 studies were selected for the analysis of HP in controls vs EAC patients. Eleven studies used serology to classify patients as HP positive or negative. Three studies used biopsy to classify patients as HP positive or negative. The 2 cohort studies which were the largest studies in this meta-analysis, included 10158 patients seronegative for HP and 11342 patients seropositive for HP. Patients in these cohort studies were followed for more than 15 years. The pooled odd ratio for EAC in patients with HP positive infection was 0.559 (95% CI 0.466–0.670, P Value 0.00). Thus, HP positivity decreases the risk of EAC by 45%. Additiona1y, we identified 5 studies that compared prevalence of HP in controls and BE patients and EAC patients. There was no difference in prevalence of HP between patients with BE and EAC.

CONCLUSION: We report a lower prevalence of HP infection in EAC patients compared to population controls, but no difference in HP prevalence between patients with BE and EAC. This implies that HP infection seems to protect against the development of BE or EAC, but does not influence the progression of BE to EAC. Widespread antibiotic use may lead to changes in the bacterial microbiome other than eradication of HP. Further studies are needed to delineate non-HP related changes in the bacterial microbiome contributing to the increasing incidence of EAC.

S0404 Presidential Poster Award

Improved Histopathologic Features in Patients With Eosinophilic Esophagitis: Results and Analyses From a Phase 3, Randomized, Placebo-Controlled Trial of Budesonide Oral Suspension

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1Cincinnati Children’s Hospital Medical Center, University of Cincinnati College of Medicine, Cincinnati, OH; 2Northwestern University Feinberg School of Medicine, Chicago, IL; 3Mayo Clinic, Rochester, MN; 4University of Pennsylvania Perelman School of Medicine, Philadelphia, PA; 5Shire, a Takeda Company, Lexington, MA; 6Shire, a Takeda Company, Cambridge, MA; 7University of North Carolina at Chapel Hill, Chapel Hill, NC.

INTRODUCTION: The Eosinophilic Esophagitis Histology Scoring System (EoEHSS) is a validated measure that assesses the grade (severity) and stage (extent) of eight histopathologic features of the EoEHSS, after 12 weeks of therapy.

METHODS: This was a phase 3, 12-week, randomized, double-blind, placebo-controlled trial of BOS (2.0 mg b.i.d.) in patients 11–55 years old with EoE and dysphagia (NCT0265837). Secondary efficacy endpoints were change in peak eosinophil counts and EoEHSS scores from baseline to week 12. Post hoc analyses examined the change in (1) EoEHSS scores by esophageal region and histologic response threshold (H1, ≥6 and ≤<15 eosinphils/high-power field [eos/hpf]) and (2) individual features of the EoEHSS, after 12 weeks of therapy.

RESULTS: Overall, 318 patients received ≥1 dose of BOS (n = 213) or placebo (n = 105). The mean age (standard deviation) was 33.9 (12.0) years. The trial met its co-primary and key secondary endpoints (data not shown). BOS-treated patients had greater least-squares mean (standard error of the mean) changes in peak eosinophil counts (−5.2 [3.4] vs −7.6 [4.3] eos/hpf, P < 0.001) and EoEHSS scores than placebo-treated patients (grade, −0.22 [0.01] vs −0.03 [0.02]; stage, −0.20 [0.01] vs −0.00 [0.02]; Table 1), changes in EoEHSS scores were similar by esophageal region (Figure 2).

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Mean changes in EoEHSS scores were similar across histologic response thresholds (Table 1). Significantly greater improvements were observed with BOS than with placebo for all features except dyskeratotic epithelial cells (Figures 1 and 2); greatest improvements with BOS therapy were for eosinophilic inflammation (EI) (grade, $21.36 [0.08]$ vs $20.22 [0.07]$; stage, $21.40 [0.08]$ vs $20.22 [0.08]$; both, $P < 0.001$) and basal zone hyperplasia (BZH) (grade, $21.56 [0.08]$ vs $20.28 [0.08]$; stage, $21.60 [0.09]$ vs $20.30 [0.12]$; both, $P < 0.001$). BOS was generally well tolerated.

**CONCLUSION:** Improvements in EoEHSS grade and stage scores were observed for BOS- versus placebo-treated patients in most histopathologic features after 12 weeks of therapy; the greatest improvements were for EI and BZH. This demonstrates that treatment with BOS leads to greater reductions in both severity and extent of histopathologic alterations than with placebo, and shows the importance of the EoEHSS in monitoring EoE disease activity in an independent and more comprehensive way compared with peak eosinophil counts.

**S0405**

Wide Area Transepithelial Sampling in Adjunct to Forceps Biopsy in Post Treatment Barrett’s Esophagus: Increasing Diagnostic Yield

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**INTRODUCTION:** Previous studies have shown that WATS-3D as an adjunct to both targeted and random FB increases the diagnostic yield for the detection of dysplasia. However, till date, there have been no published studies that assess the use of WATS-3D after endoscopic ablation or endoscopic mucosal resection (EMR). The aim of this study was to evaluate whether the addition of WATS-3D to standard FB would improve the yield of detecting intestinal metaplasia, dysplasia or carcinoma in patients undergoing post-ablation/EMR surveillance endoscopy and if this changes the medical management.

**METHODS:** A single center, retrospective cohort study was conducted. Consecutive patients undergoing WATS-3D procedure after post-ablation between 2018 and 2019 with a known prior history of BE with low-grade dysplasia (LGD), high-grade dysplasia (HGD), and/or intramucosal adenocarcinoma (IMCA) were included. Data was collected on endoscopic information, pathologic evaluation of slides, and other demographic variables.

**RESULTS:** A total of 37 subjects with a confirmed history of BE with a prior endoscopic intervention underwent EGD with FB and WATS-3D sampling. Biopsies from FB and WATS-3D were compared: negative for dysplasia or positive for metaplasia/dysplasia (Table 2). The readings were concordant on both FB and WATS-3D in 28/37 subjects or 75.6% of the samples. One additional case was detected only by FB showing LGD, representing a yield of FB alone of 2.7%. Eight additional cases were detected only by WATS-3D. Seven of them showed intestinal metaplasia and one showed indefinite for dysplasia. This increment represents an increased yield of detected metaplasia of 350% (7/2) with WATS-3D. The absolute increase of 7 cases of metaplasia, results in a number needed to treat (NNT) of 37/7 = 5.2. Three of those additional 8 cases detected by WATS-3D, had an increase in the interval of follow-up (Table 3). The former constitutes a change in management of 37.5% of those additional 8 cases.

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