Conclusion: “Pre-emptive use of PPI” reduces number of recurrence of GERD in patients who had predictable culprit event. Not only that it was comparable to chronic long-term maintenance therapy, but also the cost is probably one forth to one fifth. (As most of the patient needed it once or twice a week compared to seven days week).

The strategy of “Pre-emptive use of PPI” can cause significant cost containment and saving and it worth exploring at larger scale.

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Changes in Quality of Life over Time in Patients Registered on the Mayo Clinic Esophageal Adenocarcinoma and Barrett’s Esophagus Registry

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Purpose: To explore the change in patient quality of life (QOL) over time in patients with esophageal adenocarcinoma (EA) or Barrett’s esophagus (BE).

Methods: Members of the Mayo Clinic EABE Registry completing two QOL assessments (baseline and 1 year (range 11–16 mos)) were selected to evaluate whether QOL changes occurred over time. Completed was the Linear Analogue Self Assessment (LASA) containing 12 questions relating to QOL (overall, social, spiritual, physical, mental, emotional, social support, financial, pain, fatigue and legal issues). Each LASA question has a value from 0 (worst) to 10 (best). The change from baseline was calculated for each question. Further, the change in each score was dichotomously categorized as being a positive (increase in QOL) or negative (decrease in QOL) change.

Basic summary statistics were computed for baseline characteristics and QOL scores. Student’s-t-tests were used to determine significance in changes from baseline, Kruskal-Wallis tests were performed for the difference in continuous data between groups and Fischer-Exact tests were performed for differences in categorical data between groups.

Results: Data from 372 patients was analyzed. Median age was 66 (range 30–93); 81% were male, 10% received treatment for EA prior to QOL assessment, 8% received treatment between assessments, and 82% received no treatment. Change in scores showed that the group had significant decreases in pain frequency (< 0.001) and social support (< 0.001) and a marginally significant decrease in pain severity (P = 0.06). Patients treated between assessments had a higher change in financial well-being score than the other two groups (mean 1.5 vs -0.1 vs -0.1, P=0.001) and a higher change in legal well-being (mean 0.9 vs -0.1 vs -0.1, P = 0.04). Treated patients reported higher pain severity (P = 0.048). There were no differences in the change from baseline scores between gender or age groups. The categorical change resulted in a difference in financial well-being (P = 0.03) and social support (P = 0.03). Differences in physical well-being were marginal (P = 0.06).

Conclusion: Treated patients had less financial concerns and legal concerns but did experience higher pain severity. The significant change from baseline of social support was not evident upon subgroup analyses.

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Decreased GLIPR1 Expression in Esophageal Adenocarcinoma

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Purpose: To determine whether GLIPR1 may be altered in esophageal adenocarcinoma (ACA).

Methods: Sections from esophagectomy specimens including 13 with Barrett’s metaplasia negative for dysplasia (BMND) and 22 adenocarcinomas (ACA) were stained for the GLIPR1 protein using the immunohistochemistry (IHC). The percentage of positive cells was scored on a scale of 0–5 with 0 completely negative; 1, 1–10%; 2, 11–25%; 3, 26–50%; 4, 51–75%; and 5, >75% of the cells positive. The intensity of staining was scored as 0, completely negative; 1, weak; 2, moderate; and 3, strong intensity. Paired frozen samples of 4 normal and ACA were assayed for GLIPR1 promoter hypermethylation using the bisulfite method.

Results: Staining was both nuclear and cytoplasmic, and was completely abolished by preincubating the antibody with the immunizing peptide. The immunostaining score (IC) score for the BMND cases ranged from 6–15, whereas the score for ACA ranged from 0–10 with 4 of the ACA cases completely negative and 14 having very low IC scores (0–2). The mean IC score for the ACA, 3.3, was significantly lower than that for BMND, 11, (P < 0.0001, unpaired t-test). In a smaller subset of the cases in which both BMND and ACA were from the same esophagectomy specimens, the mean IC score for ACA (4.5) and BMND (10.9) were also significantly different (P = 0.0105, paired t-test). The methylation status of the gene did not correlate with the levels of protein, as determined by IHC, in paired samples of normal and tumor tissues.

Conclusion: We conclude that the majority of esophageal adenocarcinomas have significant reduction of GLIPR1 protein expression suggesting that GLIPR1 plays a significant role in malignant transformation in Barrett’s esophagus.

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ADHERE Study: Application of Dx-pH Catheters in the Evaluation of Patients without Gastroesophageal Reflux Disease (GERD)

George Sun, MD, Sean Casey, MD, Eric Hill, MD, Farnoosh Farrokhii, MD, Michael Vaezi, MD∗. Digestive Disease Center, Vanderbilt University Medical Center, Nashville, TN.

Purpose: The Restech Dx-pH probe is a new ambulatory pH monitoring device which uses a sensitive sensor to capture liquid and aerosolized acid. Its design allows for convenient placement in the oropharynx above the upper esophageal sphincter (UES) without the need for manometry or endoscopy. Currently, no normative data for this device exists nor has its application been validated for use in patients with GERD or esophageal symptoms. Our aim was to provide data for Dx-pH probes in the oropharyngeal and distal esophageal sites in normal subjects.

Methods: Normal subjects underwent prolonged ambulatory Dx-pH testing in the oropharynx and distal esophagus. The distal probe was placed 5 cm above the manometrically measured LES, and the proximal probe was placed visually into the oropharynx at the level of the uvula at a known distance from the UES. The following reflux parameters were measured using the Mann-Whitney non-parametric procedure: median% time below pH 4, 5, and 6, as well as, mean number of events per 24 hours below each of the above pH cutoffs.

Results: A total of 31 normal subjects (11 M/ 20 F); mean age 33.2 yrs (range 21–56) comprised the study population. The median (95th percentile) total% time below pH 4, 5, and 6 in the distal esophagus was 1.0 (5.3), 2.9 (12.6), and 10.4 (46.1), respectively (Table 1). For the oropharyngeal proximal probe, the median (95th percentile)% time below pH 4, 5, and 6 was 0.0 (0.0), 0.0 (2.4), and 1.0 (22.5), respectively. Finally, for the proximal probe, the median (95th percentile) number of events below pH 4, 5, and 6 was 0.0 (0.6), 0.0 (8.4), and 4.1 (197.5), respectively, over a 24 hour period in this normal population.

Table 1. Median Dx-pH probe measurements: oropharynx vs. esophagus

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Oropharynx (25–75%)</th>
<th>Esophagus (25–75%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Time pH &lt; 4</td>
<td>0.0 (0.0–0.0)</td>
<td>1.0 (0.4–3.5)</td>
</tr>
<tr>
<td># of events/24 hrs &lt; pH 4</td>
<td>0.0 (0.0–0.0)</td>
<td>0.0 (0.0–0.0)</td>
</tr>
<tr>
<td>% Time pH &lt; 5</td>
<td>0.0 (0.0–0.0)</td>
<td>2.9 (1.3–6.6)</td>
</tr>
<tr>
<td># of events/24 hrs &lt; pH 5</td>
<td>0.0 (0.0–0.0)</td>
<td>0.0 (0.0–0.0)</td>
</tr>
<tr>
<td>% Time pH &lt; 6</td>
<td>1.0 (0.0–11.2)</td>
<td>10.4 (5.2–20.4)</td>
</tr>
<tr>
<td># of events/24 hrs &lt; pH 6</td>
<td>4.1 (0.0–56.9)</td>
<td>4.1 (0.0–56.9)</td>
</tr>
</tbody>
</table>
Conclusion: The normative values for the new Dx-pH catheter probe compares favorably to the accepted gold standard pH monitoring device. Future studies can focus on comparative evaluations between patients with and without GERD using the Dx-pH catheter probe.

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Coexistence of Barrett’s Esophagus and Eosinophilic Esophagitis Cristina Almansa, MD, Herbert Wolsfen, MD, Kenneth Devault, MD, Sami R. Achem, MD*. Gastroenterology, Mayo Clinic, Jacksonville, FL.

Purpose: The interaction between gastroesophageal reflux (GERD) and eosinophilic esophagitis (EoE) is complex. There is a high prevalence of GERD symptoms in patients with EoE. Patients with GERD have increased eosinophils in the esophageal epithelium. EoE may cause exudates and strictures but it is unclear whether complications such as Barrett’s esophagus occur in EoE. Purpose: 1. Determine the prevalence of Barrett Esophagus (BE) in patients with Eosinophilic esophagitis (EoE). 2. Compare the demographic, clinical and endoscopic features of patients with EoE to those with EoE and BE.

Methods: Retrospective review of our series of consecutive patients with EoE (N = 71) evaluated in the last year. EoE was diagnosed if > 20 E/HPF were identified. BE was diagnosed when “salmon-like” epithelium was seen in the tubular esophagus and biopsy confirmed intestinal metaplasia.

Results: Barrett’s esophagus was found in 14% (10/71) patients with EoE. Six had long segment BE (≥ 3 cm) and 4 a short segment BE. Demographics, clinical and endoscopic features are summarized below:

Conclusion: BE coexists in 14% of patients with EoE. Endoscopists should be aware of the potential occurrence of these two common disorders on the same patient. Esophageal symptoms of GERD and dysphagia overlap in these patients. Subjects with BE and EoE are more likely to have GERD symptoms and hiatus hernia while those with EoE without BE are more likely to have dysphagia and rings. A substantive proportion of patients with BE and EoE has peripheral eosinophilia and allergies. Further studies are needed to determine the potential interactions between these two common entities.

Demographics and Symptoms

<table>
<thead>
<tr>
<th>Disorder</th>
<th>N</th>
<th>Mean Age (range)</th>
<th>Males</th>
<th>race</th>
<th>GERD</th>
<th>Dysphagia</th>
<th>Impaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>EoE + BE</td>
<td>10</td>
<td>58 (19-88)</td>
<td>9 (90%)</td>
<td>9 (90%)</td>
<td>9 (90%)</td>
<td>6 (60%)</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>EoE – BE</td>
<td>61</td>
<td>51 (19-71)</td>
<td>40 (66%)</td>
<td>31 (51%)</td>
<td>31 (51%)</td>
<td>49 (80%)</td>
<td>20 (33%)</td>
</tr>
</tbody>
</table>

Endoscopic Findings, History of Allergies and Eosinophilia

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Hiatus Hernia</th>
<th>Rings</th>
<th>Furrows</th>
<th>White Lesions</th>
<th>Distal Ring</th>
<th>Periph Eosinophilia</th>
<th>Allergies</th>
</tr>
</thead>
<tbody>
<tr>
<td>EoE + BE</td>
<td>9 (90%)</td>
<td>4 (40%)</td>
<td>4 (40%)</td>
<td>2 (20%)</td>
<td>4 (40%)</td>
<td>7 (70%)</td>
<td>6 (60%)</td>
</tr>
<tr>
<td>N = 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EoE – BE</td>
<td>22 (36%)</td>
<td>37 (61%)</td>
<td>13 (25%)</td>
<td>13 (21%)</td>
<td>19 (31%)</td>
<td>17 (35%)</td>
<td>31 (51%)</td>
</tr>
</tbody>
</table>

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Adenocarcinoma of Esophagus and Cardiosophageal Junction (CEJ): 10 Year Experience

Edward S. Friedman, MD, Anu K. Mathew, MD, Cameron Kifar, DO, Richard Gerkin, MD, Kathleen M. Rogers, CTR, Francisco C. Ramirez, MD*. Gastroenterology, Carl T. Hayden V A Medical Center, Phoenix, AZ and Medicine, Banner Health Good Samaritan Hospital, Phoenix, AZ.

Purpose: Adenocarcinoma (AdenoCA) of the esophagus and CEJ has been on the rise in the Western population. To determine the outcomes, and predictors of survival in patients diagnosed with esophageal and CEJ AdenoCA.

Methods: The endoscopic database of patients undergoing EGD were retrospectively reviewed and analyzed for patients diagnosed with esophageal and CEJ AdenoCA. Treatment modalities (none, Chemox/XRT, surgery, and stent placement), their complications, and survival rates for each cancer stage were obtained. Setting: VA medical center. Study period: 1997–2006.

Results: There were 78 patients with esophageal AdenoCA and/or CEJ. The average prevalence per year was 0.49%. Only 4 patients had EGDs prior to diagnosis of AdenoCA with an incidence rate of 0.36%. The majority of patients were diagnosed as de novo AdenoCA. The mean age at diagnosis or stage did not vary over time.

From 1997 to 1999, up to 47.7% of patients were surgically treated; thereafter this decreased to 19% while Chemo/XRT increased to 45%. Early stage detection of esophageal and CEJ adenocarcinoma did not improve over time. Staging, chemo/xrt, and year of diagnosis were all independent predictors of improved survival. For every year since diagnosis was made, the survival rate was 13.1% better. Chemo/XRT vs all other treatment options had a 50% better survival. The survival curves for each stage are shown in the Figure.

The complication rate for esophageal stents was significantly lower (16.6%) than surgery 60.7% (peri-operatively 47.7%, anastomotic stricture 13%) (P < 0.005). All other comparisons among treatment options were not significant.

Tumor recurrence after surgery was seen in one-third of patients (7/23).

Conclusion: 1) There was no change in the incidence or early detection of AdenoCA over time. 2) Most presentations are de novo and have advanced disease. 3) There has been a shift in treatment modalities over the study period. 4) Survival was dependent on staging and treatment modality chosen [figure1]

Clinical Utility of the Bravo Capsule

Brian E. Lacy, PhD, MD*, Andrew C. Dukowicz, MD, Lisa Puquette, RN, Douglas J. Robertson, MD, MPH, Julia Weiss, MS, Maurice L. Kelley, Jr., MD. Gastroenterology, Dartmouth-Hitchcock Medical Center, Lebanon, NH. Gastroenterology, WRJ VA Medical Center, White River Junction, VT and Community and Family Medicine, Dartmouth Medical School, Hanover, NH.

Purpose: The Bravo capsule is widely used to evaluate patients (Pts) with acid reflux symptoms. A preliminary study (Dukowicz et al. Am J Gastroenterol 2006; 101(9 Suppl:S48) appears to show it to be clinically useful. Our aim was to prospectively evaluate the clinical utility of the Bravo capsule in a large series of Pts by determining whether it changes diagnosis, provides new information, or alters management.

Methods: Prior to Bravo capsule deployment, referring physicians completed a questionnaire requesting: indications for the test; symptoms; prior testing; and medication use. Demographic information was obtained from the Pt. Patients were studied either on or off acid-suppressing medications. Two weeks after the referring physician received the results of the test a follow-up questionnaire was sent asking whether the Bravo capsule provided new information, and whether test results changed the Pt’s diagnosis or management.

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