changes in clinical outcomes. 3. Since there was only 1 new case of EAC in the past 8 years, and that was in a SSB, perhaps the length of BE is not as potent a risk factor as previously thought.

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Natural History of Children with Eosinophilic Esophagitis (EoE) Transitioning to Adulthood

ACG/AstraZeneca Fellow Award

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Purpose: EoE is a chronic inflammatory condition affecting both children and adults. Little is known about the natural history of EoE as children progress into adulthood. The purpose of this study was to determine the prevalence of EoE symptoms and/or EoE treatment among adults diagnosed with EoE during childhood.

Methods: This is a cross-sectional study of EoE patients from our institution's EoE registry. Patients now ≥ 18 yrs diagnosed with EoE during childhood were contacted by phone and a validated dysphagia questionnaire (Mayo Dysphagia Questionnaire-30) that measures symptoms over the past 30 days was administered. A dysphagia score was calculated based on responses to the MDQ-30. Scores ≥ 40 were considered positive, 15–40 indeterminate & ≤ 15 negative for dysphagia. Data on ongoing EoE treatment were also collected.

Results: Of the 1400 patients in the EoE registry, a total of 140 EoE patients ≥ 18 yrs were identified and contacted via telephone. 53 completed all questions. Most common reasons for non-response were failure to answer phone calls and subject no longer living at the listed residence. 75% of EoE subjects were male, 98% Caucasian. Mean age was 20.5 ± 2.47 yrs, mean age at diagnosis of EoE was 13.5 ± 3.52 yrs. 90% of respondents had a history of atopic airway disease and 79% a history of food allergy. Dysphagia scores were positive in 2/53 (4%) & indeterminate in 4/53 (8%). However, 18/53 (34%) experienced difficulty swallowing within the past 30 days, whereas the remainder reported no swallowing difficulty. Ongoing medical EoE treatments were: topical steroids [3/53 (6%)] & investigational therapies [4/53 (8%)]. Additionally, 26/53 (49%) were on PPI therapy (indication unknown). 40/53 (76%) were following allergy directed diets. In total 45/53 (85%) were on at least one therapy (medical or dietary) for EoE. 8 (15%) subjects were on no therapy of which only one noted recent swallowing difficulty. 4 (8%) subjects were on PPI therapy alone, none of which complained of any difficulty swallowing. GERD symptoms (heartburn and/or regurgitation), were reported by 33/53 (62%). Of these 33 subjects, 20 (61%) were already on PPI therapy.

Conclusion: The vast majority of young adults diagnosed with EoE during childhood continue to require pharmacological treatment and/or dietary modification for EoE. A substantial proportion of this patient population experiences ongoing swallowing difficulties that a standard dysphagia questionnaire fails to capture. These data suggest that EoE diagnosed during childhood remains a significant medical issue during early adulthood and better instruments are needed to measure EoE symptoms in this clinical setting.

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Inappropriate Use of Over-the-Counter (OTC) PPIs in Patients with GERD

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Purpose: To survey dosing patterns in OTC compared to prescription PPI users and to determine relationships between optimal and suboptimal PPI use and effective treatment of GERD.

Methods: Patients at 3 clinics affiliated with a major university teaching hospital were surveyed regarding the diagnosis of GERD, use of OTC or prescription PPIs, information on time of day dosing, demographics, and Gastroesophageal Reflux Disease Symptom Assessment Scale (GSAS). Responders were classified as optimal (once or twice daily before breakfast; second dose before dinner), suboptimal (intermittent or meal-independent use), or excessive (>2 times daily) PPI users.

Results: 1959 patients participated in the study, of whom 610 (31%) used PPIs for GERD. Of these, 190 (31%) and 223 (37%) received prescriptions from gastroenterologists (GIs) and primary care physicians (PCPs), respectively, while 197 (32%) purchased OTC PPIs without medical supervision (consumers). Whereas 71% of GIs prescribed PPIs in an optimal manner, only 47% of patients receiving prescriptions from PCPs and 39% of consumers used PPIs optimally (P<0.001 compared to GIs). GSAS scores were significantly better in patients prescribed PPIs by GIs (P<0.001 for all parameters, GI compared to PCP and consumer). Symptom scores (mean [confidence interval, CI]) were 2 [1.4], 4 [2.7], and 3 [2.6] in GIs, PCPs, and consumers, respectively. Frequency scores (mean, [CI]) were 0.2 [0.07,0.47], 0.47 [0.13,1.2], and 0.53 [0.13,1.2], while severity scores (mean, [CI]) were 14 [0.40], 40 [13,110], and 62 [13,92], in GIs, PCPs, and consumers, respectively. Symptom, frequency, and severity scores were also significantly better in patients using PPIs optimally (P<0.001 for all parameters) compared to those individuals taking PPIs suboptimally or excessively.

Conclusion: Patients requiring prescription PPI from a gastroenterologist are more likely to be optimal users. PPI use in such individuals is associated with a lower disease burden, while consumers are more likely to be suboptimal users and to harbor a greater disease burden. Results of this study not only confirm previous studies showing that suboptimal administration of PPIs is more prevalent among PCPs, but extend these observations by showing that consumers are the least likely to take PPIs optimally. Moreover, this study demonstrates that patients treated by GIs and those taking PPIs optimally are most likely to have the greatest control of GERD disease activity. It thus appears that educational programs involving both PCPs and consumers are needed to ensure optimal PPI use and to thereby enable effective treatment of GERD.

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The Epidemiology and Natural History of Barrett's Esophagus and Intestinal Metaplasia of Gastroesophageal Junction in Korea

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Purpose: The incidence of esophageal adenocarcinoma (EAC) is rapidly increasing in western countries. However, the diagnosis of EAC and Barrett's esophagus (BE), its precursor, in Asian countries are still uncommon in spite of increased western food pattern or obesity. There are few studies describing prevalence of EAC and BE in asymptomatic people who undergo endoscopy (EGD) for health check. However, no study has described the natural history of BE. We aimed to investigate the epidemiology and natural history of BE and intestinal metaplasia of gastroesophageal junction (IMGEJ) during an asymptomatic health check EGD at a single center in South Korea.

Methods: From 2001 to 2010, 180,087 asymptomatic people who underwent EGD for health check at a tertiary care center were identified. Their EGD report, photographs, and pathology were reviewed and BE (columnar segment ≥ 1 cm with specialized intestinal metaplasia, or IMGEJ (intestinal metaplasia in biopsies from the gastroesophageal junction) were identified. Serum Helicobacter pylori (HP) IgG antibody was checked in all subjects. Their subsequent EGD and pathology reports and medical records were reviewed.

Results: A total of 126 subjects (M:F = 91:35, mean age = 51.9±10.3) were identified. 73 subjects (0.04%) were diagnosed with BE and 53 subjects (0.03%) with IMGEJ. The mean number of biopsies taken was 1.6±0.8. Of the 73 subjects with BE, 72 (98.6%) had short-segment BE (SSBE), and 1 (1.4%) had long-segment BE (LSBE). HP IgG antibody was positive in 35 (47.9%) of BE and
Overnight Esophageal Peristaltic Activity Is Predictive of States of Wakefulness and Sleep

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Purpose: Previous studies have shown that patients with GERD swallow more frequently than healthy controls. Overnight combined multichannel intraluminal impedance (MII-pH) detects esophageal peristaltic activity (PA) at night. Portable sleep monitoring using Zeo allows distinction between periods of wakefulness and various stages of sleep (REM, light, or deep) by utilizing dry fabric sensors which are integrated into a headband which continuously detect neural activity of patients wearing the headband device. There is no information comparing these techniques in GERD patients as an indicator of sleep stages. We evaluated the use of PA (both primary and secondary contractions) as detected by MII-pH as a marker to identify stages of wake/sleep.

Methods: 21 patients (13 male, 8 female) were studied. All patients were referred for evaluation of GERD. Each patient was monitored using a Zeo Personal Sleep Coach (Zeo, Inc, Newton, MA) during the overnight recumbent portion of 24 h-MII-pH testing. Both Zeo and MII-pH analysis software allowed for precise time synchronization so that overnight MII-pH swallow activity and Zeo sleep staging data were analyzed independently, then correlated. Impedance allowed analysis of PA/min which were matched with the patients’ stage of sleep/wake (wake, REM, light, deep) as assessed by the Zeo device. STATISTICS: Peristaltic activity frequency (PAF) between sleep/wake stages were compared by ANOVA.

Results: During overnight analysis, 3485 PA were detected by MII-pH spanning 1328 sleep/wake periods over 9215.5 minutes as detected by Zeo. PAF was significantly higher (p<0.01) during periods of wakefulness (mean ± SD = 0.72 ± 0.30 PA/min) than during all periods of sleep (0.25-0.39 PA/min). Although the difference in PAF between all stages of sleep/wake were found to be statistically significant, the inter-sleep stage (REM - light - deep) differences were not significant.

Conclusion: Peristaltic activity frequency detected by MII-pH reliably predicts wakefulness as shown by Zeo. Although PA frequency during REM sleep is higher than that experienced during light and deep sleep, it did not delineate differences in sleep stages.

Disclosure: Erick Singh - Consultant: Takeda Pharmaceuticals; Daniel Pohl - No conflicts of interest; Fernando Arevalo - No conflicts of interest; Janice Freeman - Consultant: Sandhill Scientific Inc.; Christopher Rife - No conflicts of interest; Donald Castell - consultant: Sandhill Scientific Inc and Takeda Pharmaceuticals, Speakers Bureau: Sandhill Scientific Inc, Xenopoint Inc, and Takeda Pharmaceuticals.

Boerhaave’s Syndrome: A Presentation of Eosinophilic Esophagitis in the Absence of Food Impaction

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Purpose: Prior studies have reported esophageal rupture following endoscopy or bolus impaction in eosinophilic esophagitis. The purpose of this study is to define the clinical spectrum of spontaneous rupture (Boerhaave’s Syndrome) associated with vomiting in eosinophilic esophagitis.

Methods: A retrospective search of inpatient and outpatient records was conducted for the diagnoses “Boerhaave’s”, “eosinophilic esophagitis”, and “esophageal rupture” from January 2001 to January 2011 within the gastroenterology division at an urban tertiary care hospital. For each subject identified, medical records, endoscopy reports, biopsy reports and radiographic studies were reviewed. A faculty member of the Department of Pathology blindly reviewed all esophageal biopsy specimens. Eosinophilic esophagitis was defined as 15 or more eosinophils in at least 2 high-power fields (HPFs) or 25 or more eosinophils in any single HPF.

Results: Over a period of ten years, four patients were identified with spontaneous esophageal rupture in the setting of eosinophilic esophagitis in the absence of food impaction or endoscopy. None of the patients had an established diagnosis of eosinophilic esophagitis prior to presentation. All four cases presented with a triad of vomiting, chest pain and pneumomediastinum. In two of the four patients water-soluble contrast extravasation was seen on imaging prompting surgical intervention (30%), one of these patients required esophageal resection. Full thickness surgical specimen showed invasion of eosinophils into the muscularis propria. Intraepithelial eosinophil infiltration...