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A Prospective Clinical Trial of Six Food Elimination Diet or Elemental Diet in the Treatment of Adults with Eosinophilic Gastroenteritis

Nirmala Gonsalves, Bethany Doerfler, Guang Yu Yang, Ikuo Hirano

Background: Eosinophilic gastroenteritis (EG) is a rare disorder whose pathogenesis is poorly understood. To date there are no reports of dietary elimination in adults with EG. **Aim:** To evaluate the effectiveness of therapy with six food elimination diet (SFED) or elemental diet (ED) in adults with EG. **Methods:** Adults with a histologic diagnosis of EG were treated with either SFED or ED for 6 wks. All pts were off steroid or immunomodulators prior to inclusion and during the study period and were ruled out for H pylori and other infections. Pts met with a dietician for counseling and compliance. After 6 wks, pts had repeat EGD with biopsies in the proximal/distal esophagus, stomach and duodenum. Response was defined as peak count < 5 eos/hpf in the esophagus and <10 eos/hpf in gastric or duodenal specimens. If pts did not respond to SFED, they were offered 6 wks of ED. **Results:** 9 pts (6M) have been included to date. Average age was 35yrs (27-49) with median duration of symptoms of 13.5yrs (0.25-37). All pts had gastric involvement and 3/9 and 6/9 pts also had duodenal and esophageal eosinophilia, respectively. Common symptoms were abdominal pain (7), diarrhea (4), weight loss (4), dysphagia (4) nausea/vomiting (3) and fatigue (3). Complications of EG included anemia (4), malnutrition (2), osteoporosis (2) non-healing ulcer disease (1) and duodenal stricture (1). 89% of pts were atopic and 44% had history of food allergies. Skin prick testing for aero and food allergens were positive in 100% of the 77% of pts tested. Endoscopic findings were gastric erythema (100%) and nodularity (56%), duodenal erythema (22%) and nodularity (11%). All pts with dysphagia had features consistent with eosinophilic esophagitis (EoE) including rings (75%) furrows (75%), small caliber (50%), and stricture (25%). Diagnosis of EG preceded EoE in 50% of EG+EoE pts by an average of 10 yrs. No pts with pre-existing EoE progressed to EG. 89% of pts had peripheral eosinophilia (absolute eosinophil counts 1100-3900k/ul). IgE levels were high in 4/6 pts tested. 7/9 pts were initially treated with SFED and 2 pts with ED. 4/7 pts on SFED and 2/2 pts on ED had resolution of symptoms, histologic and peripheral eosinophilia. The remaining 3 pts on SFED had symptomatic but not histologic improvement, therefore are now undergoing ED. **Conclusions:** (1) Dietary elimination is effective in reducing symptoms, histologic and peripheral eosinophilia in 4/7 EG adults on SFED and 2/2 on ED implicating food allergens in the etiopathogenesis. (2) Further trials of dietary elimination in adults with EG are warranted.

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Overlapping Features Between Eosinophilic Esophagitis and Gastroesophageal Reflux

Cristina Almansa, Sara Cano, Kenneth R. DeVault, Herbert C. Wolfsen, Nicholas J. Talley, Sami R. Achem

Introduction: The potential interrelation between eosinophilic esophagitis (EoE) and gastroesophageal reflux (GER) remains poorly understood. Both GER and EoE can be associated with esophageal eosinophilia and it may be difficult to distinguish between the two disorders. The recently published AGA guidelines (Gastroenterology, 2007 Oct; 133(4):1342-63) recommend that a double dose PPI trial or a negative pH should be used to distinguish between EoE and GER. Aims: Compare demographic, clinical, endoscopic characteristics in patients with increased esophageal eosinophilia with and without GER. Determine if there are specific features that allow differentiation between these populations. Methods: We conducted a retrospective review of consecutive patients seen at our center with eosophageal eosinophilia (≥ 20 eos/hpf) during a 5 year period. Patients were grouped as: 1) No GER (double-dose PPI trial for at least 8 weeks prior to esophageal biopsy or negative pH testing and no Barrett esophagus (BE); 2) GER (patients with BE /or abnormal pH test); 3) GER status uncertain (no prior PPI trial/pH not done). Patient demographics, history of allergies, clinical and endoscopic features were extracted from the medical record. Statistic analysis done by ANOVA and contingency table. Results: 117 patients were found during the study period. 41 (35%) patients met current published diagnostic guidelines for EoE (i.e. symptoms + ≥ 20 eos/HPF and exclusion of GER). The table compares features among our three patient populations. Conclusions: In patients with esophageal eosinophila (≥ 20 eos/HPF) only one third meet currently accepted diagnostic criteria for EoE (GER excluded). Patients with EoE share similar phenotypic characteristics, except for hiatal hernia (more common in GER), and are indistinguishable from those with GER and esophageal eosinophila. Our study findings underscore the overlapping nature of EoE and GER and add to the growing body of evidence regarding the interrelation between the eosinophil, GER and EoE.

Parameter	EoE N= 41	GER N= 38	Uncertain GER N= 38	p Value
Mean Age (SD)	50.4 (18.7)	52.4 (16.3)	49.7 (14.9)	NS
Male	23 (56.1%)	24 (63.2%)	29 (76.3%)	NS
Caucasian	38 (92.7%)	38 (100%)	36 (94.7%)	NS
Allergies	20 (48.7%)	15 (39.4%)	14 (36.8%)	NS
Eosinophilia	15 (45.5%)	11 (37.9%)	7 (23.3%)	NS
GER	28 (68.3%)	26 (68.4%)	19 (50%)	NS
Food Impaction	2 (4.9%)	1 (2.6%)	3 (7.9%)	NS
Rings	23 (56.1%)	25 (65.8%)	24 (63.2%)	NS
Furrows	14 (34%)	11 (28.9%)	10 (26.3%)	NS
White lesions	13 (31.7%)	11 (28.9%)	4 (10.5%)	NS
Hiatal hernia	14 (34.1%)	24 (63.2%)	12 (31.6%)	0.04

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Esophageal Dilation in Eosinophilic Esophagitis: Safety and Predictors of Clinical Response and Complications

Evan S. Dellon, Wood B. Gibbs, Tara C. Rubinas, Karen J. Fritchie, John T. Woosley, Nicholas J. Shaheen

Background: Esophageal strictures due to eosinophilic esophagitis (EoE) present management challenges. Because esophageal mucosa is prone to tearing and luminal caliber can be narrow, high rates of rents and perforation have been reported. **Aim:** To assess the safety of esophageal dilation in EoE, and to characterize predictors of clinical response and complications of the procedure. **Methods:** We performed a retrospective study of the University of North Carolina EoE database. Cases of EoE were defined as having ≥15 eosinophils per high-powered field (0.23mm^2) with at least one typical symptom (dysphagia, heartburn, or feeding intolerance) in whom other causes of esophageal eosinophilia excluded. All upper endoscopy and clinical reports from EoE cases were reviewed for dilation methodology, complications (defined as immediate or post-procedural events such as: deep mucosal rents, contained or free perforation, and chest pain requiring medical attention), hospitalizations, and clinical symptom response to dilation. Analysis was performed on a per-patient and per-dilation basis using t-tests and chi-square. **Results:** A total of 130 cases of EoE were identified (mean age 26 years; 75% male; 80% Caucasian). 36 (28%) patients underwent a total of 70 dilations (mean 2 dilations per person; range: 1-9). Patients undergoing dilation were older (40 vs 21 years; p<0.001), but the baseline eosinophil counts were similar (57 vs 69; p=0.16). Balloon dilation was used in 58 cases (83%) and Savary dilation in 12 (17%). Esophageal size improved from a mean of 12mm (range 6-15) to 16mm (range 10-18), with an overall symptom response rate of 83%. Only 3 patients were medically treated for EoE (corticosteroids or montelukast) at the time of their initial dilation; 38 subsequent dilations (54%) occurred on treatment. The only predictor of clinical response was final dilation diameter (14mm in the non-response group vs 16.5 in the response group; p=0.005). There were 5 complications (7%): 2 deep mucosal rents and 3 episodes of chest pain; there were no perforations. The only hospitalization was a 24 hour admission for chest pain. All complications occurred in patients on topical steroids who underwent balloon dilation. Complications were associated with younger age (23 vs 42; p=0.02) and more dilations (4 vs 1.7; p=0.009), but not with eosinophil count (70 vs 55; p=0.34). **Conclusions:** Esophageal dilation may be performed in EoE with low rates of tears, chest pain, and hospitalization. No perforations were found in our database. The efficacy of dilation was best when larger esophageal caliber was achieved, but undergoing more procedures was associated with complications.

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The Utility of Specific Symptoms and Endoscopic Features As Predictors of Eosinophilic Esophagitis (EoE) in Adults

Stephen M. Miller, Seth F. Tatel, Samuel J. Lee, Justin R. Boike, Jae Kim, Nirmala Gonsalves, Ikuo Hirano, Jay L. Goldstein

Introduction: EoE is being reported with increasing frequency in the adult population; however, the positive predictive value of clinical symptoms and endoscopic findings is unknown. There is evidence that adults with dysphagia and endoscopic findings including rings, furrows and exudates may have undiagnosed EoE. Despite the gold standard of histology, a model that combines clinical symptoms along with endoscopic findings may help predict the probability of EoE and influence the cost-utility of esophageal biopsy. The aim of the study was to determine which clinical or endoscopic features, alone or in combination, yield a higher/clinically relevant predictive value of EoE. Methods: We retrospectively studied 208 adult (>18 yo) patients at an urban university hospital from 10/06-4/07 who underwent EGD for symptoms of presumed GERD and/or dysphagia based on the recorded indication for endoscopy. Age, gender, ethnicity, indication for endoscopy, endoscopic findings, +/- biopsies and the presence or absence of eosinophilic esophagitis (≥15 eos/hpf) were all recorded. Endoscopic findings recorded for this analysis included erosive esophagitis, furrows, rings, and exudates. Statistics: Data were evaluated using Stata 9.0 for Macintosh (Stata corp., College Station, TX) statistical software. A chi-squared test was performed to examine the relationship between clinical symptoms and endoscopic findings in EoE. Results: EoE was found in 16/110 (14.5%) patients who underwent endoscopy with biopsy. Of patients with rings and furrows 47/48 (97.9%) were biopsied, while only 47/79 (59.5%) of patients with only dysphagia were biopsied. The clinical symptoms and EGD findings for the patients with biopsy-proven EoE are in the table below. Note that individually dysphagia, rings and furrows were statistically significant independent predictors of EoE. The presence of either of two endoscopic findings (rings or furrows) heightened the PPV of esophageal biopsies for EoE. Interestingly, additionally requiring the presence of dysphagia did not further increase the PPV of esophageal biopsies for EoE. Conclusions: The cost-utility of endoscopy is increased in populations where a positive finding is more likely. Our findings suggest that selected use of symptoms and/or endoscopic findings may predict and/or guide clinically relevant choices for esophageal biopsies.

	Symptoms		EGD Findings				
EoE	Dysphagia	GERD	Rings	Furrows	Exudates	Rings or Furrows	Rings or Furrows and Dyphagia
N	12/16	4/16	12/16	10/16	4/16	14/16	11/16
PPV	75.0%	25.0%	75.0%	62.5%	25.0%	87.5%	68.7%
p-value	0.008	0.003	0.0001	0.0001	0.0001	0.0001	0.0001