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Eosinophilic Esophagitis (EoE)

Christina McKinley
Otterbein University, mckinley1@otterbein.edu

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Christy McKinley, BSN, RN
Otterbein University, Westerville, Ohio

Why Eosinophilic Esophagitis

The author of this poster works at a summer camp for kids with medical diagnosis and serious illnesses. The work that this camp does is challenging, very exciting, and hosting kids with EoE can be a big challenge for the medical team at this camp. Education on this diagnosis and ways to care for children and adults is always changing. EoE is an important topic to discuss with the camp staff, volunteers, and the medical staff. This is a newer diagnosis, within the last 20 years. It has been diagnosed more and more in the US and around the world. Knowledge on the pathophysiology, diagnosis, and treatment will only help practitioner's care for patients more holistically and thoughtfully.

Introduction to Eosinophilic Esophagitis

Eosinophilic Esophagitis or EoE is a cause of upper gastrointestinal (GI) Dysfunction (Stern, et al, 2018). This is a rare disease, effecting approximately 56 per 100,000 individuals in the United States (Stern, et al 2018). The diagnosis of EoE is a relatively new diagnosis being discovered and recognized with in the last twenty years (Vermeulen, et al, 2017), and is found more often in males as opposed to females (Posten, Adamiak, & Jensen, 2018).

Eosinophilic esophagitis (EoE) is a chronic allergic or immune disease resulting in eosinophilic infiltration of the esophagus, causing inflammation of the esophagus (James & Assa'ad, 2018). It occurs when white blood cells collect in the esophagus ultimately lead to dysfunction (James & Assa'ad, 2018).

The diagnosis of Eosinophilic Esophagitis can be life altering, and have a huge impact on health, mortality and quality of life. Learning how to diagnosis, treat, and educate patients can have a huge impact on someone diagnosis with EoE.

Signs and Symptoms

- Heartburn despite proton pump inhibitor (PPI) use
- Poor weight gain or failure to thrive in infants or children
- Refusal to eat or food eversion
- Vomiting often occurring with meals
- Difficulty swallowing (dysphagia)
- Pain or discomfort with swallowing (odynophagia)
- Food becoming lodged within the esophagus (food impaction)
- Other related symptoms can include chronic cough or chest/ throat/ or abdominal pain.

(In general, lower GI symptoms such as diarrhea or bloating are not typically associated with EoE.)

Image Credit: https://info.healtheo360.com

Pathophysiology of Eosinophilic Esophagitis

EoE is defined as "a chronic, local immune-mediated esophageal disease, characterized clinically by symptoms related to esophageal dysfunction and histologically an eosinophil-predominant inflammation" (Schoepfer, et al., 2018).

Esophagitis is still a very new diagnosed disease, and it is thought to have a genetic component due to the higher prevalence in the male population (Posten, Adamiak, & Jensen, 2018).

EoE is thought to be mediated by type 2 helper T-cell activity, induced by food antigens. Interleukin-5 and interleukin-13 also thought to have involvement in the manifestation if EoE. Once an allergen is introduced into the system, eosinophils migrate into the esophagus by interleukin-5 and interleukin-13 and eotaxin (which is a chemoattractant for eosinophils). "The eosinophils cause mucosal injury via release of inflammatory mediators such as cytotoxic granule proteins, cytokines, and reactive oxygen intermediates (Posten, Adamiak, & Jensen, p.363, 2018). The inflammatory response continues to respond adding both functional and structural abnormalities that lead to the signs and symptoms of EOE (Posten, Adamiak, & Jensen, 2018).

Significance of Pathophysiology

Due to the newer nature of Eosinophilic Esophagitis, understand this diagnosis, the pathophysiology, treatment options are essential to providing holistic care to patients. As a future Nurse practitioner (NP) we should understand the disease processes and understand triggers for the disease processes. This would allows for optimal treatments plans, understanding complications or side effects, and promote a high quality of life. Education is also a significance component to the pathophysiology. Educating patients and family on the origin of this disease can help guide their treatment plan. Each person diagnosis with EoE can wide range of signs and symptoms, ranging from mild to severe, and knowing what triggers the flair up makes the management of EoE achievable.

Diagnosis of EoE

Diagnostic tools and guidelines are used for proper diagnosis of Eosinophilic esophagitis. Symptoms may present with nonspecific symptoms or GERD-like symptoms, however the diagnosis of EoE is based on clinical symptoms, endoscopic and histologic findings (Posten, Adamiak, & Jensen, 2018).

Presentation of a Case/ Processes

A two month formula feed baby boy presents to his pediatrician with irritability, poor weight gain, excessive spit up, vomiting after eating, and increased aversion to formula. Upon examination, baby is fussy, and vital signs as reported: Blood pressure 75/45, Heart Rate 180, Respirations 35, Temp 98.7, and his weight has dropped from 11.3lbs, to 10.9 lbs.

Course of treatment includes, blood work including CBC, Chem 7, and allergy testing, formula change, and placing baby on a proton pump inhibitor (PPI) to rule out GERD. With a follow up visit to see if medication is working. At the follow up visit the parents state that he is still irritable, and still not eating well. Vital signs are all with in normal limits except his weight has dropped to 10.5 lbs. A referral or consult to a pediatric gastroenterology (GI) specialist is indicated, as well as a consult to an allergist to rule out any allergies.

Once seen my the GI specialist, further testing in indicated . Testing that is required is an upper endoscope procedure called esophagogastroduodenoscopy (EDG) and a biopsy of the esophagus. Once the result of the EGD and biopsy returned, it was noted that there was more then 15 eosinophils per high power field despite being on a PPI. With that knowledge and with signs and symptom, the findings are consistent with the diagnosis of EoE.

Treatment was started . Treatment included working with the allergist for a formula that does not interfere with his EoE, continued PPI, and an oral glucocorticoid if needed. Frequent EGD's will be required to tract progression. And continued education as the baby get older for types of diet.

Figure 1. Endoscopic features that are associated with EoE: (a) white exudates, (b) fixed rings, (c) edema (pale mucosa with decreased vascularity), (d) longitudinal furrows, (e) strictures and (f) mucosal fragility ("crepe paper esophagus")

Image Credit: http://eoelink.eu/2018/04/29/18672/

Guidelines for Diagnosis

1. Clinical symptoms suggesting esophageal dysfunction
2. Histological presence of 15 or more intraepithelial eosinophils/HPF in at least one endoscopic esophageal mucosal biopsy taken at upper gastrointestinal endoscopy
3. Mucosal eosinophilia isolated to the esophagus that does not improve with Proton Pump Inhibitor (PPI) trial
4. Other causes of esophageal eosinophilia have been excluded
5. Response to treatment supports, but is not required, for diagnosis

(Posten, Adamiak, & Jensen, 2018)

Nursing Implications

- Education is extremely important, including education on diagnosis, safe foods, medications, side effects to look for.
- Proper swallowing technique, as well as ways to minimize discomfort after eating.
- Knowing ones resources, and understand that treatment should be multidisciplinary, including a GI specialist and an allergy specialist to assist with symptoms.
- Understanding this is a life long disease, and that with proper medication and treatment management is possible.
- Understanding Treatment options that include, medication (oral antihistamine, oral glucocorticoids, and acid reducing medications) food elimination diet, and scheduled EGD's to assess progression.
- Improving quality of life, so many of our day to day activities involve food, and assessing that potential loss.

Conclusion

Eosinophilic Esophagitis is a chronic inflammatory response to food that effects the esophagus. EoE is still a very young diagnosis and with increasing incidence in the United States. Despite huge strides in treatment and quality of life, more research is needed on the diagnosis and treatment options.

The clinical symptoms widely vary depending on the age of when EoE is diagnosed. A definitive diagnosis of EoE requires an EGD and biopsy with histology containing 15 or more eosinophils per high power field in conjunction with a PPI.

Understanding that this diagnosis also requires a multidisciplinary approach is essential. A GI specialist, primary care physician, allergist, and potentially a mental health specialist all must communicate and work together to provide the best and optimal care for the patient.

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