Eosinophilic Esophagitis (EoE)

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**Why Eosinophilic Esophagitis**

The author of this poster works at a summer camp for kids with medical diagnoses and serious illnesses. The work that this camp does is challenging, rare, and new, and they are working to make a big challenge for the medical team at 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 new diagnosis, within the last two decades, that has been diagnosed in infants and is uncommon in the world. Knowledge on the pathophysiology, diagnosis, and treatment will only help practitioners care for patients more holistically and thoughtfully.

**Introduction to Eosinophilic Esophagitis**

Eosinophilic Esophagitis or EoE is a cause of upper gastrointestinal (GI) Dysfunction (Storn, et al. 2018). This is a rare disease, affecting approximately 50 to 500,000 individuals in the United States (Storn, et al. 2018). The diagnosis of EoE is a relatively new diagnosis being discovered and recognized in the last twenty years (Vermueen, et al., 2017), and is found more often in males as opposed to females (Posten, Adamik, & 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 dysphagia (James & Assa’ad, 2018). The diagnosis of Eosinophilic Esophagitis can be life altering, and have a huge impact on healthy, mortality and quality of life. Learning how to diagnose, treat, and educate patients can have a huge impact on someone diagnosed with EoE.

**Signs and Symptoms**

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

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

**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” (Schaefer, et al., 2018).

Eosinophils are still a very rare diagnosed disease, and it is thought to have a genetic component due to the higher prevalence in the male population (Posten, Adamik, & 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 antigen is introduced into the system, eosinophils migrate into the esophagus by interleukin 5 and interleukin 13 and eotaxin (which is a type of chemokine for eosinophils). “The eosinophil causes mucosal injury via release of inflammatory mediators such as cytotoxic granule proteins, cytokines, and reactive oxygen intermediates (Posten, Adamik, & 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, Adamik, & Jensen, 2018).

Due to the newer nature of Eosinophilic Esophagitis, understand this disease, 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 allow for optimal treatments plans, understanding complications or side effects, and promote a high quality of life. Education is also a significant component to the pathophysiology.

Eating and feeding is a very intense and important period in a child’s development. Each person diagnostic with EoE can have a wide range of signs and symptoms ranging from mild to severe, and knowing what triggers the flair up makes the treatment plan. Each person diagnostic with EoE can have a wide range of signs and symptoms ranging from mild to severe, and knowing what triggers the flair up makes the treatment plan.

**Guidelines for Diagnosis**

1. Clinical symptoms suggesting esophageal dysfunction
2. Histological presence of Eosinophilic esophagitis/HNP 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 eosinophilic esophagitis have been excluded.
5. Response to treatment supports, but is not required, for diagnosis.

A two-month formula feed baby boy presents to his pediatrician with symptoms of irritability, poor weight gain, excessive spit up, vomiting after eating, and increased amount of stool. Upon examination, baby male was noted to be smaller than expected, with measurements 33 cm, Term 16.5.5. Weight was noted to have dropped from 13.3 lbs to 10.5 lbs. He now had a history of being yellow to the skin, with a history of recurring wheezing. History of respiratory infections, with a history of eczema. He also has a history of repeated colds, with a history of reflux while eating. His weight has dropped to 3.5 lbs. A review of his past medical history, his family history, and his current symptoms, his parents were referred to their pediatric gastroenterologist for evaluation. The diagnosis of EoE was confirmed through an endoscopy and biopsy of the esophagus. The endoscopy findings showed more than 15 eosinophil per high power field, which is consistent with EoE. The presence of the eosinophils in the biopsy was confirmed.

The 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 track his progress. And continued education as the baby get older for types of 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.

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

**References**