PREVALENCE OF EOSINOPHILIC ESOPHAGITIS AMONG ADULTS PRESENTING WITH OESOPHAGEAL SYMPTOMS

THESIS

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Absolute eosinophilic count…… *(AEC)*
Cerebrospinal fluid…… *(CSF)*
Chronic eosinophilic leukemia…… *(CEL)*
Complete blood cell…… *(CBC)*
Computed tomography…… *(CT)*
Endoscopic ultrasound ……*(EUS)*
Eosinophilic Esophagitis ……*(EE)*
Gastroesophageal reflux disease…… *(GERD)*
Granulocyte-macrophage colony-stimulating factor.. *(GM-CSF)*
Helico Pacter pylori…… *(H. pylori)*
High power field ……*(HPF)*
Human T-cell lymphotropic virus I ……*(HTLV-I)*
Hypereosinophilic syndrome ……*(HES)*
Interleukin ……*(IL)*
Lower esophageal sphincter…… *(LES)*
Nitric oxide…… *(NO)*
Nonerosive or negative endoscopy reflux disease……. *(NERD)*
Nonsteroidal anti-inflammatory drugs…… *(NSAIDs)*
Proton-pump inhibitors …… *(PPI)*
Radioallergosorbent test ……*(RAST)*
Regulated activated normal T cell expressed and secreted……*(RANTES)*
Schatzki's ring…… *(SR)*
Symptom index……*(SI)*
Transforming growth factor …… *(TGF)*
Transient lower esophageal sphincter relaxation…… *(TLESR)*
Tumor necrosis factor……*(TNF)*
World Health Organization…… *(WHO)*

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ABSTRACT

Methodology: This study included 91patients complaining of esophageal symptoms such as dysphagia/odynophagia, food impaction, abdominal pain and vomiting. Mid and low esophageal biopsies were taken and examined under HPF. Eosinophilic esophagitis was diagnosed by >/= 15 eosinophils/HPF.

Results: Mean age of the participants was 43 years with a standard deviation of 9.9 years. Three patients out of 91 proved to have eosinophilic esophagitis after histopathoplogical examination of mid esophageal biopsies. All the three cases were presented by dysphagia (*p*=.020). Total number of GERD patients were 58 (38 had grade A, 19 had grade B, 1 had grade C and none had grade D). There is overlap in one case between GERD and EE.

Conclusion: The prevalence of EE among adults was 3.3%. It was more frequent in males (2/3 of positive cases) and the main presenting symptom of patients with EE was dysphagia (*p* value=0.020).

Prevalence of GERD was 63.7% (41% grade A, 20.8% grade B, 1% grade C and 0% grade D).

Heart burn was more common in patients with GERD than in patients with EE (36.2% vs. 0%).

Key words;

Prevalence of eosinophilic esophagitis among adults presenting with oesophageal symptoms.

INTRODUCTION

Eosinophilic esophagitis (EE) is a disease in which upper intestinal symptoms are associated with dense eosinophilic infiltration of the squamous esophageal epithelium or deeper esophageal tissue, neither symptoms nor eosinophilia respond to the administration of a proton pump inhibitor. The pathophysiologic mechanisms are likely related to allergic inflammation, not to an underlying motility defect as in gastroesophageal reflux disease (GERD) ***(Potter et al, 2004).***

Eosinophilic esophagitis is a clinicopathologic disease that shows a worldwide distribution. It is distinctly more common in males, and it affects patients of all ages. Until recently there had been a preponderance of reports in the pediatric population but it has emerged as a disease that also affects adults worldwide. Although it is possible that eosinophilic esophagitis occurs less often in adults, most likely it has been underdiagnosed as recent clinical reports suggest. A recent study determined that eosinophilic esophagitis is the leading cause of food impaction and dysphagia in a suburban private practice ***(Noel et al, 2004; b).***

The exact etiology of EE is not known. Most investigators agree that EE is driven by an aberrant immune-mediated response. The known association between eosinophils with food allergies suggested that food antigens may cause eosinophilic esophagitis and this assumption has proven true in many patients ***(Liacouras and Ruchelli, 2004).***

Several lines of evidence support a role for allergic inflammation in the pathogenesis of EE. The most obvious evidence for such involvement is the central role of the eosinophil. This cell is often considered synonymous with allergic disease because of its accumulation in sputum

in asthma, nasal secretions in allergic rhinitis and in the skin during flares of acute eczema ***(Bonis, 2009).***

Eosinophilic inflammation of the esophagus can be found in a number of diseases including GERD, eosinophilic gastroenteritis, hypereosinophilic syndrome, food allergies, inflammatory bowel disease, parasitic infection, and collagen vascular diseases ***(Walsh et al, 1999).***

Eosinophilic esophagitis usually presents with a multitude of symptoms, in part because it is a chronic disease and partly because of the gradual inflammatory involvement of the mucosa and submucosa before symptoms develop. It can, however, present acutely as seen in food impactions **(*Chehade and Sampson, 2008).***

The most common presenting symptom is dysphagia but other symptoms such as nausea, vomiting, heartburn, chest pain or abdominal pain can also occur ***(Croese et al, 2003).***

Endoscopic findings seen on the esophageal mucosa can range from the subtle to dramatic. The mucosa can appear normal or have nonspecific features of inflammation such as erythema, edema and friability. On the basis of these findings, one can appreciate the difficulty in distinguishing eosinophilic esophagitis from peptic esophagitis; this emphasizes the necessity of obtaining esophageal biopsies in all suspected patients. A number of investigators have independently identified other endoscopic features such as granularity, absent vascular margins, linear fissuring, vertical furrowing, longitudinal tears, felinization, corrugation, fixed or transient concentric rings and proximal stricture ***(Nurko et al 2001).***

The role of acid reflux in the pathogenesis of eosinophilic esophagitis is a matter of debate. The coming years will also bring new enlightenment as to the relationships between GERD and EE. There is probably clinical

crossover between these two diseases in some patients that will likely be explained as the esophageal microenvironment becomes better defined ***(Mikhak and Luster, 2009).***

For years, EE went unrecognized because eosinophilic infiltration was accepted as a manifestation of reflux, which continues to be a confounding factor in some patients.

Current consensus is that the diagnosis of eosinophilic esophagitis is established by:

- The presence of symptoms, especially dysphagia and food impactions in adults.
- >/=15 eosinophils per high power field in oesophageal tissue.
- Exclusion of other disorders with similar presentations such as GERD ***(Gonsalves and Kahrilas, 2009).***

Treatments are effective in eliminating symptoms and reducing esophageal eosinophilia, each carrying its own risks and benefits and ease of compliance. Dietary elimination is safe and offers lifelong treatment, but compliance can be difficult. Topical steroids offer an easily administered alternative but carries potential side effects of esophageal candidiasis, and this treatment should not be used for prolonged periods ***(Noel (B), et al 2004).***

THE AIM OF WORK

The aim of this work is to detect the prevalence of eosinophilic esophagitis in patients presenting with eosophageal symptoms as well as to clarify the possibility of overlap between eosinophilic esophagitis and gastroesophageal reflux disease.

ESOPHAGITIS

Due to the fact that the esophagus lacks mucus lining like that of the stomach, it can get irritated by stomach acid that passes the cardiac sphincter ***(Hillemeier, 1996)***.

Definition:

Esophagitis is an inflammation of the lining of the esophagus.

Causes *(Graman et al, 2009)*:

The most common cause is gastroesophageal reflux disease (GERD). If caused by GERD, the disease is also called **reflux esophagitis**.

- Other causes of esophagitis include infections (most commonly candida, herpes simplex and cytomegalovirus). These infections are typically seen in immunocompromised people, such as those with human immunodeficiency virus (HIV).
- Chemical injury by alkaline or acid solutions may also cause esophagitis, and is usually seen in children or in adults who attempt suicide.
- Physical injury resulting from radiation therapy or by nasogastric tubes may also be responsible.
- Medications: Some common medications also can cause a chemical burn in the esophagus. Pills that are most likely to cause esophagitis include potassium, nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or aspirin, osteoporosis medications such as alendronate (Fosamax) or risedronate (Actonel) and iron supplements.

- Chemotherapy and radiation therapy for cancer – Some of these treatments can injure the esophagus lining, resulting in esophagitis
- Eosinophilic esophagitis (EE) which is thought to be related to food allergies.

Symptoms *(Graman et al, 2009)*:

The main symptoms of esophagitis are:

- Chest or throat pain that can be burning, heavy or sharp – If acid reflux is the cause of esophagitis, the pain may be worse after meals or on lying flat. Pain from esophagitis may be constant or frequent.
- Swallowing problems including difficulty in swallowing (dysphagia), pain during swallowing (odynophagia) and food impaction.

Diagnosis:

The diagnosis often is based on symptoms. The most accurate way to check for esophagitis is for a gastroenterologist to look directly at the inside of the esophagus with an endoscope. The gastroenterologist can see evidence of injury from esophagitis, such as erosions or ulcers, blisters or scarred areas. Some infections leave a deposit on the esophagus walls that can be sampled through the endoscope by using a remote-controlled brush. In some cases an esophageal biopsy is done ***(Isaac et al, 1997).***

Prevention *(Kenneth et al, 1995)*:

The most common cause of esophagitis, acid reflux, sometimes can be prevented by some very simple measures:

- Avoiding heavy meals, especially within several hours of bedtime.

- Stoppage of cigarettes and alcohol.
- Avoidance of large amounts of caffeine, chocolate, peppermint and high-fat foods.
- Weight control.

Treatment *(Fabio and Gabriele, 2004):*

Treatment depends on the cause of esophagitis.

- **Acid reflux** – Acid-blocking medications, including H2-blockers and proton-pump inhibitors (PPIs), may be used. For a few difficult cases, an antireflux surgery may be helpful.
- **Medications** – Drinking a full glass of water after taking a pill can help. Usually, if esophagitis has occurred, it is necessary for the patient to stop the medicine at least temporarily.

EOSINOPHILIA

The term eosinophilia is defined as an increase in peripheral blood eosinophilic leukocytes to more than 600 cells per microliter (µ L) of blood. Emphasis is placed on the number of eosinophils circulating in the peripheral blood, although an increase in eosinophils can be observed in other body fluids (e.g. cerebrospinal fluid [CSF], urine) and many body tissues (e.g. skin, lung, heart, liver, intestine, bladder, bone marrow, muscle, nerve) ***(Spry, 1988).***

Eosinophils are derived from hematopoietic stem cells initially committed to the myeloid line and then to the basophil-eosinophil granulocyte lineage. Nonpathologic functions of eosinophils and the cationic enzymes of their granules include mediating parasite defense reactions, allergic response, tissue inflammation, and immune modulation ***(Gotlib, 2005).***

Tissues of the pulmonary and gastrointestinal (GI) systems are the normal residence for eosinophils, but peripheral, or blood, eosinophilia (absolute eosinophil count [AEC] >600 cells/µL) indicates an eosinophilic disorder. Untreated, the eosinophilia can be categorized as mild (AEC 600-1500 cells/µL), moderate (AEC 1500-5000 cells/µL) or severe (AEC >5000 cells/µL). An increase in tissue eosinophilia may be seen with or without concurrent peripheral eosinophilia ***(Tefferi et al, 2006).***

A secondary or reactive increase in blood eosinophils, tissue eosinophils, or both is associated with a wide variety of infections (especially helminthic parasites), allergic responses, neoplasms, connective tissue disorders, medications and endocrinopathies. Primary