

ADVANCES IN GERD

Current Developments in the Management of Acid-Related GI Disorders

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Management of Eosinophilic Esophagitis From Childhood to Adulthood



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G&H Is eosinophilic esophagitis still being diagnosed and recognized more commonly in children than adults?

GTF Eosinophilic esophagitis was first reported in adults in the early 1990s, but over the next decade, pediatricians took the lead in the identification of clinical features and treatment of this disease. However, there has recently been increased recognition of eosinophilic esophagitis in the adult gastroenterology community, and more adults are receiving the diagnosis of eosinophilic esophagitis. The pediatric gastroenterology community is continuing its trend of recognizing this disease as well.

In addition, a number of specialty groups (eg, allergy, otolaryngology, and surgery) have been recognizing that eosinophilic esophagitis is affecting some of their patients (both adults and children), which is also increasing the number of patients being diagnosed.

G&H What are the most common treatment options for pediatric eosinophilic esophagitis patients?

GTF Three types of treatment options are currently being used for pediatric eosinophilic esophagitis patients: dietary treatment, medical treatment, and dilation. The same therapies can also be used in adult patients with the disease.

Dietary treatment is primarily based on dietary restrictions. Food allergens that may be sparking the patient's symptoms are identified and removed from the patient's diet, or the patient is given an elemental formula that is digested completely. There are 2 methods for determining which

foods should be restricted from the patient's diet. Targeted blood or skin testing can be performed to determine which foods are allergenic, or the 6 most common allergenic foods can be eliminated from the patient's diet to try to induce remission. This approach has been shown to be successful in pediatric patients by a number of investigators. A recent study from Gonsalves and Hirano at Northwestern University Medical School demonstrated the effectiveness of dietary restrictions in adults with eosinophilic esophagitis.

The primary type of medical treatment for eosinophilic esophagitis is topical steroids. Patients are given either a metered-dose inhaler of fluticasone, a medication used to treat asthma, or an oral viscous solution of budesonide. These medications are swallowed to coat the esophagus to resolve inflammation and improve symptoms. This approach has been used successfully in a number of studies in children and adults.

Dilation is used in eosinophilic esophagitis patients who have narrowed areas or strictures. While this treatment is effective at improving symptoms, it does not address the underlying inflammatory process.

Research is also currently being conducted on the use of biologic agents for treating eosinophilic esophagitis, so there may be other treatment options in the future.

G&H Are there any particular difficulties or concerns when treating pediatric patients with eosinophilic esophagitis?

GTF The primary goal of treating pediatric patients is to maintain normal growth and development. In this regard, children must be able to eat enough food to gain

weight, grow taller, and develop age-appropriate gross and fine motor skills. The second consideration in pediatric management is to try to avoid complications associated with eosinophilic esophagitis, such as food impactions, esophageal strictures, and feeding problems. It is unclear how often these complications may develop, but pediatric gastroenterologists try to prevent them as best they can.

Finally, balancing the risks and benefits of treatments and disease are becoming increasingly important. Until recently, the quality of life of children has not been addressed; this area requires further study.

G&H Do all children with eosinophilic esophagitis require lifelong treatment, or do they occasionally outgrow the disease?

GTF I have never seen patients outgrow this disease; in my experience, eosinophilic esophagitis is a chronic disease that requires ongoing treatment, and when treatment is stopped—whether it is medical, dietary, or endoscopic—the inflammation returns.

G&H Do a patient's symptoms and disease appear to change over time, particularly in terms of severity?

GTF In my clinical experience, I have not seen the disease progress per se (ie, become dramatically worse over time despite treatments). Usually, treatment is able to control the inflammation and symptoms associated with the disease.

G&H What are the considerations of transitioning care from childhood to adulthood (in general, and specifically in terms of eosinophilic esophagitis)?

GTF As disease recognition has increased, the number of children and adults who have been diagnosed has continued to grow. As such, pediatricians are faced with the challenge, as with other gastrointestinal inflammatory diseases, of transitioning teenagers to adult gastroenterologists. Since treatment choices vary among practices and geographical locations, this transition can be a challenging prospect. Further research into the important considerations for disease management and follow-up care will define standard-of-care practice for the years to come.

As noted above, at least 3 treatments can be used to effectively help patients feel better. In this regard, a critical challenge that will face all practitioners is how to handle the transition of treatments. For example, dietary treatment may be very effective and may be tolerated by a toddler and his or her family, but as the child grows older and becomes more engaged with other children outside of

the home, dietary treatments may be more challenging. In this regard, the child and family may choose to switch to a topical steroid approach.

This becomes an issue again when teenagers and college-aged patients begin to “own” their disease. Some patients may not want to continue their treatment unless they feel poorly, whereas other patients will adhere to previously prescribed treatments. Engagement with and transfer to an adult gastroenterologist who is well versed in these issues will benefit the patient and the long-term outcome of the disease. Long-term follow-up of children and adults is a critical part of care for patients with eosinophilic esophagitis.

G&H Have any programs or guidelines been established to help the transition process in these patients?

GTF Eosinophilic esophagitis is a “young” disease. To date, diagnostic and treatment guidelines have been developed through multidisciplinary discussions. In 2007, these guidelines were published in *Gastroenterology*, and revised guidelines were published in 2011 in the *Journal of Allergy and Clinical Immunology*. The targeted publication of these guidelines in these journals was done to increase awareness of the disease, consolidate a consistent pattern of evaluation, and begin to develop patterns of collaboration between pediatric and adult subspecialists. While no transition guidelines or programs have been established for eosinophilic esophagitis patients to date, this is a critical area of investigation and practice. Investigators at the University of North Carolina are currently conducting care in this area.

G&H What monitoring and long-term care do eosinophilic esophagitis patients need over the course of their treatment?

GTF The primary treatment goal for children and adults with eosinophilic esophagitis is reduction of symptoms and inflammation. The difficulty of this goal is that inflammation can only be evaluated by performing an endoscopy. One of the challenges currently facing gastroenterologists is how to justify performing repeat endoscopies, particularly since this disease is not life-threatening. My colleagues and I are developing a novel, minimally invasive monitoring method, the Esophageal String Test, which will hopefully provide benefits for our patients.

There are currently no guidelines on how to best monitor eosinophilic esophagitis patients, and there is a lack of global knowledge regarding the long-term care of these patients. Beyond reduction of symptoms and inflammation, pediatricians would likely agree that growth and

development are also important; however, there would probably be much debate about what else is involved in confirming the improvement of esophageal tissue. I think that it is very important to confirm that treatment is working and, thus, inflammation is being reduced, which likely, in turn, is reducing the risk of complications.

Long-term, routine follow-up is vital. Gastroenterologists must make sure that patients are adhering to their treatment and are not incurring any side effects of the treatments or incurring complications from the disease; these long-term follow-up visits allow gastroenterologists to chart the natural history of the disease. In this regard, the risks and benefits of performing endoscopy must be balanced with the risks and benefits of knowing that treatment is working.

G&H Do any of the therapies appear to lose efficacy over the long treatment period?

GTF No, I have not seen this to be the case per se. If patients respond to steroids or dietary exclusion, they continue to do so, at least in patients who are monitored on a fairly consistent basis.

G&H How challenging is adherence to long-term therapy for patients with eosinophilic esophagitis?

GTF Adherence to therapy is always difficult, regardless of the disease, because patients often stop or reduce treatment when they are feeling better. This holds true for eosinophilic esophagitis patients, who may loosen their dietary restrictions or skip some medication doses when they are feeling well. However, once they stop adhering to their treatment regimen, they start experiencing typical eosinophilic esophagitis symptoms and will restart their treatment.

G&H What unmet research needs remain in this area?

GTF It would be very useful to know the natural history of this disease. My feeling is that there are several different

phenotypes of eosinophilic esophagitis, and definition of these phenotypes will allow us to potentially determine best practices and approaches to treatments. Definitions of these phenotypes is already undergoing examination by a number of investigators. For instance, researchers at the Children's Hospital Cincinnati, Rady Children's Hospital, and Children's Hospital of Philadelphia are currently working on how to identify specific genotype/phenotype relationships. New treatments and therapeutic targets will be developed based on these mechanistic studies so patients have more treatment options.

In addition, the metrics used for measuring eosinophilic esophagitis are finally undergoing definition. Developing better ways to measure disease activity, quality of life, and other factors will improve management of this disease.

Finally, engagement of the US Food and Drug Administration in developing models for improving the process of bringing new treatments to patients with eosinophilic esophagitis is a welcome addition and will bear critical impact to this field for children and adults.

Suggested Reading

Liacouras CA, Furuta GT, Hirano I, et al. Eosinophilic esophagitis: updated consensus recommendations for children and adults. *J Allergy Clin Immunol.* 2011;128:3-20.e6; quiz 21-22.

Dellon ES, Jones PD, Martin NB, et al. Health-care transition from pediatric to adult-focused gastroenterology in patients with eosinophilic esophagitis. *Dis Esophagus.* 2012 Feb 6. Epub ahead of print.

Straumann A, Aceves SS, Blanchard C, et al. Pediatric and adult eosinophilic esophagitis: similarities and differences. *Allergy.* 2012;67:477-490.

Furuta GT, Liacouras CA, Collins MH, et al; First International Gastrointestinal Eosinophil Research Symposium (FIGERS) Subcommittees. Eosinophilic esophagitis in children and adults: a systematic review and consensus recommendations for diagnosis and treatment. *Gastroenterology.* 2007;133:1342-1363.

Fillon SA, Harris JK, Wagner BD, et al. Novel device to sample the esophageal microbiome—the esophageal string test. *PLoS One.* 2012;7:e42938.

Furuta GT, Kagalwalla AF, Lee JJ, et al. The oesophageal string test: a novel, minimally invasive method measures mucosal inflammation in eosinophilic oesophagitis. *Gut.* 2012 Aug 15. Epub ahead of print.

Rothenberg ME, Aceves S, Bonis PA, et al. Working with the US Food and Drug Administration: progress and timelines in understanding and treating patients with eosinophilic esophagitis. *J Allergy Clin Immunol.* 2012;130:617-619.

Fiorentino R, Liu G, Pariser AR, Mulberg AE. Cross-sector sponsorship of research in eosinophilic esophagitis: a collaborative model for rational drug development in rare diseases. *J Allergy Clin Immunol.* 2012;130:613-616.