the need for repeated endoscopies. Since EoP level is affected by antihistamines, larger prospective studies are needed to investigate the effects of antihistamines and swallowed steroids on EoP mobilization into the peripheral blood.

**REVIEWER COMMENTS:** Although this study shows patients with EoE on dietary therapy have a higher EoP with active disease, the levels in the peripheral blood are overlapping, and, although statistically significant, the sensitivity of the assay is low, indicating active patients could be missed if this biomarker was used alone as a marker for active disease. EoP definitely shows promise but needs further validation. The antihistamine effect is interesting because it is possible that histamine blockage may modulate the Th2 response that mobilizes eosinophils into the periphery. This would need further investigation to prove. Future studies will need to include a control group and determination if EoP is just as indicative of active EoE in patients who are nonresponsive to dietary therapy. This study suggests use of a biomarker of histologic inflammation like EoP might decrease the need for endoscopy and anesthesia exposure in select patients with EoE in the future.

**RESULTS:** EoE symptom number and symptom severity decreased significantly over the year of treatment ($P = .013$, $P < .001$, respectively). Additionally, the PedsQL PR Total, Physical, Psychosocial, and Family Impact scores all improved significantly ($P = .001, .012, .012, .0015$, respectively), but PedsQL child self-report scores did not ($P = .17$). Symptom reduction correlated with PR PedsQL improvement ($P = .01$). Only children who presented with severe solid or liquid dysphagia or vomiting had symptoms which completely remitted, but lower symptom severity ratings indicated clinically significant improvement. Anorexia/early satiety and abdominal pain were recalcitrant in some patients, and children ages 7 and younger had more symptoms and greater symptom severity.

**CONCLUSIONS:** Children with EoE treated for one year at multi-disciplinary tertiary care centers retained most symptoms, but with decreased severity. This disproportionately affected younger children ages 2–7 years of age. Parent reported HRQoL improved with symptom reduction.

**Symptom Burden and Quality of Life Over Time in Pediatric Eosinophilic Esophagitis**


**PURPOSE OF THE STUDY:** To evaluate if children with eosinophilic esophagitis (EoE) demonstrated an association between health-related quality of life (HRQoL) improvements and symptom reduction during treatment of 1 year, to examine age-related EoE discrete symptom presentation, and to describe residual symptom and HRQoL burden.

**STUDY POPULATION:** A prospective cohort of children and their families with established diagnosis of EoE based on previously identified criteria, including presence of upper intestinal symptoms, $\geq 15$ eosinophils/high power field in the esophageal mucosa, treatment with proton pump inhibitors for 2 months before EoE diagnosis, and alternative causes for symptoms and eosinophilia ruled out; and new patients to tertiary care programs at 1 of 4 centers: Children’s Hospital Colorado/National Jewish Health, Children’s Hospital of Philadelphia, Cincinnati Children’s Hospital Medical Center, and Rady Children’s Hospital. The 109 participants were primarily Caucasian males from well-educated families, with average age of 7.6 years (range 2–18).

**METHODS:** This was a prospective, longitudinal, multi-centered study that measured symptoms and symptom severity for eight EoE symptoms, including abdominal pain, heartburn/regurgitation, anorexia/early satiety, nausea, nocturnal symptoms, solid food and liquid dysphagia, and vomiting. HRQoL was measured with the Pediatric Quality of Life (PedsQL) parent proxy (PR) report, child self-report (CR), and Family Impact Module. Mixed-effects modeling was used to test changes over time for symptom burden and child and family HRQoL.

**RESULTS:** EoE symptom number and symptom severity decreased significantly over the year of treatment ($P = .013$, $P < .001$, respectively). Additionally, the PedsQL PR Total, Physical, Psychosocial, and Family Impact scores all improved significantly ($P = .001, .012, .012, .0015$, respectively), but PedsQL child self-report scores did not ($P = .17$). Symptom reduction correlated with PR PedsQL improvement ($P = .01$). Only children who presented with severe solid or liquid dysphagia or vomiting had symptoms which completely remitted, but lower symptom severity ratings indicated clinically significant improvement. Anorexia/early satiety and abdominal pain were recalcitrant in some patients, and children ages 7 and younger had more symptoms and greater symptom severity.

**CONCLUSIONS:** Children with EoE treated for one year at multi-disciplinary tertiary care centers retained most symptoms, but with decreased severity. This disproportionately affected younger children ages 2–7 years of age. Parent reported HRQoL improved with symptom reduction.

**REVIEWER COMMENTS:** This study is the first longitudinal report of symptom burden and how it relates to HRQoL in children with EoE. The results underscore the slow response of EoE symptoms to treatment and the chronic nature of this inflammatory disease. The dissimilarities between the parent- and child-reported HRQoL are consistent with the literature in that parents typically report a lower HRQoL for their children than the children report for themselves. This may be due to an overestimation of the impact of chronic disease on the child. The improvement in this study of the parent-reported HRQoL may also be due to the overestimation of the effect of the treatment impact. Histology was not assessed in this study, so it is unknown if the symptoms correlated with eosinophil resolution. Given the persistent nature of some symptoms of EoE, treating providers should consider behavioral health evaluation and support to address HRQoL.
### Symptom Burden and Quality of Life Over Time in Pediatric Eosinophilic Esophagitis

Carla M. Davis

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