Atopic Dermatitis History is Not Associated with Measures of EoE Severity

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Background

Eosinophilic esophagitis (EoE) – a chronic inflammatory disease marked by esophageal dysfunction and eosinophilic inflammation triggered by food or inhaled allergens – is strongly associated with atopic conditions including asthma, allergic rhinitis, food allergy, and atopic dermatitis (AD).

Although the rate of EoE in patients with AD is shown to be higher than in the general population, no analysis has been conducted on if the presentation and disease course of EoE differs in this population. Our objective was to determine if AD is associated with increased EoE severity and symptom presentation.

Methods

This was a single-center retrospective chart review assessing EoE patients treated with proton pump inhibitor (PPI) monotherapy, a first-line EoE treatment. Patients were included if they were diagnosed with EoE by consensus guidelines and had upper endoscopies (EGD) before and after >8 weeks of PPI therapy. AD was defined as patient or physician-reported presence of this condition.

Fibrostenotic phenotype was defined as the presence of an esophageal stricture, need for dilation, or sclerosis on biopsy. Symptom presentations were assessed upon initial diagnosis. PPI-responsiveness was defined as <15 eos/hpf on esophageal biopsies after PPI therapy. Endoscopy findings were assessed using a validated scoring system assessing esophageal exudates, rings, edema, furrows, and strictures (EREFS score). Chi-square analysis and Mann Whitney U tests were used to identify differences amongst groups.

	Atopic Dermatitis Cohort (Patient or physician-report presence) (n= 55)	Non-Atopic Dermatitis Cohort (Patient or physician-report absence) (n= 88)	P-value
Age, Mean (SD)	19.3 (16.5)	12 (10.0)	0.0036
Female Gender, % (n)	23.64% (13/55)	36.36% (32/88)	0.111
Race, % (n)	White: 84.09% (45/55); Black: 9.09% (5/55); Asian: 0% (0/88); Hispanic: 0% (0/88); Other: 2.10% (3/88)	White: 84.09% (74/88); Black: 5.68% (5/88); Asian: 1.14% (1/88); Hispanic: 2.27% (2/88); Other: 1.14% (1/88)	0.628
Fibrostenotic Phenotype, % (n) (Presence of an esophageal stricture, need for dilation, or sclerosis on biopsy)	16.36% (9/55)	22.99% (20/88)	0.504
Dysphagia to Solids, % (n)	25.45% (14/55)	26.14% (23/88)	0.928
Dysphagia to Liquids, % (n)	3.64% (2/55)	3.0% (3/88)	0.943
Reflux/Heartburn, % (n)	25.45% (14/55)	19.32% (17/88)	0.386
PPI Responsiveness (<15 eos/hpf on esophageal biopsies after PPI therapy)	32.73% (18/55)	34.09% (30/88)	0.867
Esophageal Exudates, % (n) (Grading: None; Mild; Severe)	None: 29.41% (10/34); Mild: 47.06% (16/34); Severe: 25.53% (8/34)	None: 42% (21/50); Mild: 44% (22/50); Severe: 14% (7/50)	0.379
Esophageal Rings, % (n) (Grading: None; Mild; Moderate; Severe)	None: 88.24% (30/34); Mild: 11.76% (4/34); Moderate 0% (0/34); Severe 0% (0/34)	None: 69.39% (34/49); Mild: 22.45% (11/49); Moderate: 4.08% (2/49); Severe 4.08% (2/49)	0.174
Esophageal Edema, % (n) (Grading: Absent; Present)	Absent:12.12% (4/33); Present 87.88% (29/33)	Absent: 10.64% (5/47); Present: 89.36% (42/47)	0.836
Esophageal Furrows, % (n) (Grading: Absent; Present)	Absent: 14.71% (5/34); Present: 85.29% (29/34)	Absent: 14.58% (7/48); Present: 85.42% (41/48)	0.988
Esophageal Strictures, % (n) (Grading: Absent; Present)	Absent: 91.43% (32/35); Present: 8.57% (3/35)	Absent: 92.0% (46/50); Present: 8.0% (4/50)	0.925

Conclusions

- A total of 143 patients with a median age of 16 met the inclusion criteria for this study with 55 having a history of AD.
- No statistical differences were found in the measured parameters including EREFS Score, phenotype, PPI responsiveness, or symptom presentation. A significant difference was noted in the age demographics between the AD and non-AD cohorts.
- To our knowledge, this is the first study assessing EoE severity in patients with a history of AD. Despite the increased prevalence of EoE in AD patients, our data suggest that the presence of AD is not associated with increased EoE severity or symptom presentation.
- This conclusion differs from other concurrent atopic disease couplings, such as chronic rhinosinusitis (CRS) and AD which presents with increased CRS severity and altering phenotype expression than when not in the setting of AD. Future studies are needed to confirm our unique finding as our sample size may be inadequate to demonstrate true differences amongst these cohorts.

References

1. Dellon ES, Liacouras CA, Molina-Infante J, et al. Updated International Consensus Diagnostic Criteria for Eosinophilic Esophagitis: Proceedings of the AGREE Conference. Gastroenterology. 2018;155(4):1022-1033.e10. doi:10.1053/j.gastro.2018.07.009
2. Mohammad AA, Wu SZ, Ibrahim O, Bena J, Rizk M, Piliang M, Bergfeld WF. Prevalence of atopic comorbidities in eosinophilic esophagitis: A case-control study of 449 patients. J Am Acad Dermatol. 2017 Mar;76(3):559-560. doi: 10.1016/j.jaad.2016.08.068. PMID: 28212761.
3. Doucet-Ladevèze R, Holvoet S, Raymond F, Foata F, Hershey GKK, Sherrill JD, Rothenberg ME, Blanchard C. Transcriptomic Analysis Links Eosinophilic Esophagitis and Atopic Dermatitis. Front Pediatr. 2019 Nov 20;7:467. doi: 10.3389/fped.2019.00467. PMID: 31824894; PMCID: PMC6879454.
4. Khan AH, Gouia I, Kamat S, Johnson R, Small M, Siddall J. Prevalence and Severity Distribution of Type 2 Inflammation-Related Comorbidities Among Patients with Asthma, Chronic Rhinosinusitis with Nasal Polyps, and Atopic Dermatitis. Lung. 2023 Feb;201(1):57-63. doi: 10.1007/s00408-023-00603-z. Epub 2023 Feb 20. PMID: 36808551; PMCID: PMC9968259.