

# Clinical features and treatment response to topical steroids in ethnic and racial minority patients with eosinophilic esophagitis

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## Introduction

- Differences in EoE presentation or treatment response by ethnic or racial minority status remains understudied
- We aimed to determine whether EoE patients of Hispanic/Latinx ethnicity or non-white race have differences in presentation at diagnosis or response to topical corticosteroid (tCS) treatment.

## Methods

- Study design:** Retrospective Cohort Study
- Study site:** University of North Carolina (UNC) EoE Clinicopathologic Database
- Cases:** Subjects of any age with a new diagnosis of EoE were included.
- Data:** Ethnicity and race were recorded as documented in the chart. Baseline demographics, symptoms, endoscopic features, and histologic findings were also extracted.
- For the subset who had treatment with a tCS as per clinical protocols and a follow-up endoscopy with biopsy, we assessed histologic response (<15 eosinophils/hpf), global symptom response, endoscopic response, EREFS, and an endoscopic severity score (ESS).

- Analysis:** Hispanic EoE patients were compared to non-Hispanics at baseline, and before and after treatment. The same analyses were repeated for white vs non-whites.

## Results

- Of 1026 EoE patients with ethnicity data, 23 (2%) were Hispanic and most clinical features at presentation were similar to non-Hispanic EoE patients.

**Table 1. Comparison of characteristics at diagnosis between non-Hispanic and Hispanic EoE patients**

	Non-Hispanic (n = 1003)	Hispanic (n = 23)	p
Age at diagnosis (mean years ± SD)	30.0 ± 20.0	22.8 ± 20.6	0.08
Children <18 year (n, %)	344 (34)	13 (57)	0.03
Male (n, %)	671 (67)	19 (83)	0.11
Race (n, %)			< 0.001
White	880 (88)	8 (37)	
African-American	85 (9)	1 (5)	
Asian	10 (1)	1 (5)	
Native American/Alaskan	10 (1)	0 (0)	
Other	14 (1)	12 (55)	
Insurance (n, %)	837 (84)	15 (65)	0.02
Symptom length prior to diagnosis (mean years ± SD)	7.5 ± 8.4	8.1 ± 10.9	0.75
Symptoms (n, %)			
Dysphagia	757 (76)	15 (65)	0.23
Food impaction	335 (34)	5 (22)	0.22
Heartburn	362 (37)	7 (30)	0.53
Chest pain	107 (11)	2 (9)	0.74
Abdominal pain	169 (17)	3 (13)	0.61
Nausea	95 (10)	1 (4)	0.39
Vomiting	225 (23)	10 (43)	0.02
Endoscopic findings (n, %)			
Exudates	408 (41)	11 (48)	0.50
Rings	159 (16)	7 (30)	0.04
Edema	399 (40)	10 (43)	0.73
Furrows	674 (67)	14 (61)	0.51
Stricture	293 (29)	6 (26)	0.74
Narrowing	162 (16)	3 (13)	0.68
Crepe-paper mucosa	40 (4)	1 (4)	0.93
Dilation	308 (31)	4 (17)	0.17
Total EREFS (mean ± SD)*	3.7 ± 2.0	3.4 ± 1.6	0.61
Total ESS (mean ± SD)*	2.3 ± 1.6	2.1 ± 1.6	0.52
Peak eosinophil count (mean eos/hpf ± SD)	64.6 ± 44.4	57.5 ± 41.1	0.44

\*ERFS data available for n=480; ESS = endoscopic severity score (the addition of the presence/absence of findings of exudates, rings, edema, furrows and stricture; range 0-5), for which data are available for n = 1021

**Table 2. Treatment and response data compared between white and non-white EoE patients**

	White (n = 426)	Non-White (n = 49)	p
Type of steroid used (n, %)			0.06
Fluticasone	140 (33)	8 (16)	
Budesonide	285 (67)	41 (84)	
Ciclesonide	1 (<1)	0 (0)	
Mean steroid dose (mg ± SD)	175.5 ± 711	141.5 ± 635	0.002
Symptom response (n, %)*	130 (78)	9 (64)	0.27
Post-treatment peak eosinophil count (mean eos/hpf ± SD)	22.5 ± 34.3	39.0 ± 49.8	0.003
p value vs baseline	< 0.001	0.02	
Histologic response (n, %)			
<15 eos/hpf	253 (59)	20 (41)	0.01
≤6 eos/hpf	223 (52)	18 (27)	0.04
<1 eos/hpf	131 (31)	12 (24)	0.37
Post-treatment endoscopic findings (n, %)			
Normal	84 (20)	15 (31)	0.08
Exudates	96 (23)	16 (33)	0.11
Rings	206 (49)	7 (15)	< 0.001
Edema	114 (27)	17 (35)	0.24
Furrows	192 (46)	20 (42)	0.58
Stricture	145 (35)	8 (17)	0.01
Narrowing	80 (19)	1 (2)	0.003
Crepe-paper mucosa	3 (1)	1 (2)	0.33
Dilation	139 (33)	8 (19)	0.04
Candida	32 (8)	2 (4)	0.38
Endoscopic response (n, %)	311 (73)	26 (54)	0.006
Post-treatment endoscopic severity (mean scores ± SD)			
ERFS**	2.3 ± 1.9	2.2 ± 2.0	0.83
p value vs baseline	< 0.001	0.008	
ESS***	1.8 ± 1.5	1.4 ± 1.5	0.09
p value vs baseline	< 0.001	0.13	

\*available for 168 and 14; \*\*available for 238 and 16; \*\*\*available for 437 and 48

- Out of 466 patients who received tCS, 8 were Hispanic and had numerically higher eosinophil counts (47.0 vs 24.5; p=0.09) and numerically lower histologic response (38% vs 57%; p=0.27) post-treatment (Table 1).
- When comparing EoE patients in terms of race, non-white patients (13%) had many differences in presentation: younger age at diagnosis, less insurance, shorter symptom duration, more vomiting, less dysphagia and food impaction, fewer typical endoscopic features, and less dilation (Table 2).

- On multivariate analyses, age, vomiting, and furrows remained independently associated with non-white race.
- Of 475 patients with race data treated with tCS, the 49 non-whites had a significantly lower histologic response rate (41% vs 59%; p=0.01) (Table 2).
- After controlling for age, insurance, symptom length prior to diagnosis, total steroid dose, and whether dilation was performed, non-whites were less than half as likely to have histologic response (aOR 0.42, 95%CI: 0.21-0.83).

## Conclusions

- Only 2% of EoE patients at our center were Hispanic, and they had similar clinical presentations as non-Hispanics. While treatment response was lower, this assessment was limited by a small sample size.
- The non-white EoE group was larger (13%), and presentation was less dysphagia-specific.
- Non-white patients also had a lower histologic response to tCS which persisted after accounting for differences in presentation.

## References

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