

Background

- Eosinophilic esophagitis (EoE) is characterized by age-specific symptoms of esophageal dysfunction and histopathological esophageal eosinophilic infiltrates
- Limited evidence on EoE phenotypic variances exist in multi-racial pediatric cohorts

Objectives

- To identify phenotypic differences in a multi-racial pediatric cohort of patients with EoE

Methods

- Observational, retrospective chart review study.
- Inclusion criteria: clinical symptomatology and histopathological confirmation of EoE
- Variables of interest were extracted from the medical records.
- The World Health Organization (WHO) definition of race was utilized for stratification.
- Multivariable analysis was performed using a statistical software for demographic trends and descriptive statistics.

Overview

- Subjects (n=34) at time of EoE diagnosis ranged between the ages of 0.58 to 20 years, with a median [IQR] of 5 [3,8] years.
- There was a predominance of males (76.4%), M:F ratio of 3:1
- Racial identity consisted of:

N	(%)
Hispanic/Latino	11 (32)
Black/African American	6 (18)
Asian	10 (29)
Other	7 (21)
- Other included Caucasian and Mixed race.
- Presenting issues with emesis and/or constipation observed to be of higher frequency (n=9, 45%) in children ≤5 years and faltering growth/weight loss (n=6, 43%) in children >5 years. (p=0.03)

Results

- Phenotypic atopy profiles:**
 - Black/African-Americans had an older median age at initial atopy documentation and EoE diagnosis (with a shorter interval between the two diagnoses)
 - There was no significant difference among the racial cohorts in their atopy profiles [Table 1]

Table 1: Phenotypic atopy profile multivariable analysis

	Black/African-American	Hispanic/Latino	Asian	Other	p-value
Allergic Rhinitis n (%)	2 (33)	5 (45)	4(40)	2(29)	0.961
Atopic Dermatitis n (%)	1 (17)	6 (55)	4 (40)	5 (71)	0.272
Asthma n (%)	2 (33)	6 (55)	5 (50)	5 (71)	0.65
Number of Atopy Diagnoses [mean, IQR(X,Y)]	2.35 (0,4)	1.46 (0,2)	1.8 (1,2)	2.28 (1,3)	0.47
Age (yrs) at first atopy diagnosis [median, IQR(X,Y)]	8 (2,14)	2 (0.33,6)	2.5 (1.5, 4)	2 (0,5)	0.481
Age (yrs) at EoE diagnosis [median, IQR(X,Y)]	13 (5,18)	4 (1.5,9)	5 (3,7)	3 (1.5,8)	0.07
Interatopy interval [median, IQR(X,Y)]	0 (0,5)	0.75 (0,3)	0.25 (0,4)	1 (0,2)	0.943

- Laboratory profiles:**
 - Allergy testing profiles:**
 - No racial difference in sensitization to the 8 common food allergens or grains.
 - Black/African-Americans more likely to be sensitized to certain environmental aeroallergens. [Table 2]

Table 2: Allergy profile testing multivariable analysis

Sensitization	Black/African-American	Hispanic/Latino	Asian	Other	p-value
Total Food [mean IQR(X,Y)]	3.2 (0,6)	2.5 (1,4)	3.2 (1,5)	3.6 (1,5)	0.139
Total Grains [mean IQR(X,Y)]	1.6 (0,3)	0.5 (0,1)	1.4 (0,3)	0.7 (0,1)	0.81
Tree n (%)	3 (100)	2 (29)	4 (44)	3 (60)	0.255
Grass n (%)	1 (50)	2 (29)	0 (0)	3 (60)	0.069
Weeds n (%)	3 (100)	3 (43)	1 (11)	3 (60)	0.037
Dustmite n (%)	3 (100)	4 (57)	2 (25)	1 (20)	0.093
Cat n (%)	2 (67)	5 (71)	3 (38)	1 (20)	0.344
Dog n (%)	3 (100)	6 (86)	1 (14)	1 (20)	0.009
Cockroach n (%)	3 (100)	4 (57)	4 (44)	2 (40)	0.465
Mouse n (%)	1 (33)	6 (86)	2 (25)	3 (60)	0.132
Mold n (%)	2 (100)	2 (29)	0 (0)	0 (0)	0.006

Results (cont.)

- Serum atopy marker profiles:**
 - Serum eosinophilia (≥ 0.35/microL) was highest in Asians, while abnormal total serum IgE (≥300 IU/mL) was equally elevated in Asians and Black/African-Americans.
 - As a marker of atopy, there was no appreciated interracial differences. [Table 3]

Table 3: Serum markers of atopy multivariable analysis

	Black/African-American	Hispanic/Latino	Asian	Other	p-value
Absolute Eosinophil Count n (%) ≥0.35/microL	3 (60)	4 (50)	7 (78)	5 (71)	0.785
Total Serum IgE n (%) ≥300 IU/L	4 (80)	3 (27)	8 (80)	4 (57)	0.075

- Histopathological profiles:**
 - Black/-African-American subjects were found to have more prominent mid-esophageal eosinophilia, while Hispanic/Latino had more prominent lower esophageal eosinophilia. [Table 4]

Table 4: Histopathological eosinophilia on endoscopic biopsy multivariable analysis

Eosinophilia [median, IQR(X,Y)]	Black/African-American	Hispanic/Latino	Asian	Other	p-value
Mid Esophagus	50 (20,80)	10 (3,20)	23 (15,41)	41 (3,41)	0.048
Lower Esophagus	35 (19,80)	40 (20,40)	35 (20,40)	41 (30,41)	0.044

Conclusions

- Black/African-Americans were more likely to present at an older age for both initial atopy and EoE.
- Black/African-Americans were more likely to have environmental allergy sensitization.
- Black/African-Americans more likely to have more severe mid-esophageal eosinophilia.
- This may be driven by genotype and/or environmental factors.
- Such differences may highlight disparities in racial equity within a healthcare system.