

Incidence of Atopic Dermatitis and Eczema by Ethnic Group Seen Within a General Pediatric Practice

Background: Genetics is believed to be a factor in the pathogenesis of atopic dermatitis and eczema. Few reports have described the prevalence of atopic dermatitis and eczema by ethnic group.

Objective: Our objective was to explore, by ethnicity, the prevalence of atopic dermatitis and eczema within a large, general pediatric practice.

Methods: From a database of all patients entering the practice, were diagnoses determined according to standard published criteria. Diagnoses were retrospectively reviewed for all patients whose ethnicity was recorded in the database.

Results: Prevalence of atopic dermatitis was 3.2% in the overall practice population. This varied as follows: 3.7% among blacks, 8.5% among Filipinos, 2.0% among Hispanics, 2.8% among whites (not Hispanic), 3.2% among mixed races, and 5.6% among other Asians. The Filipinos had a higher prevalence of atopic dermatitis and eczema ($p < 0.01$ vs. all others).

Conclusion: In this study, Filipino patients appeared to be at much higher risk for development of atopic dermatitis. In contrast, considerable ethnic variation occurs in the prevalence of atopic dermatitis and eczema in the general population.

Atopic dermatitis and eczema are commonly seen in general pediatric practice. As many as 39% of all skin disorders in children aged <5 years are diagnosed as eczema.¹ Review of the biomedical literature in English suggests important genetic influences on the genesis of atopic dermatitis and eczema. British authors¹⁻³ particularly have noted a high incidence of eczema in patients of Jamaican heritage.

Because few studies have attempted to establish the prevalence of pediatric atopic dermatitis and eczema, we sought to do so by reviewing the medical records of patients seen in a general pediatric practice.

Materials and Methods

The Kaiser Permanente (KP) pediatric practice chosen for the study is located in a suburban area of San Diego and serves a predominantly middle-income population. Approximately 45% of the community is Hispanic (predominantly Mexican), 27% is white (not of Hispanic origin), 10% Filipino, 13% black; other ethnic designations represent 5% of the community.

A computerized database using Filemaker Pro (Clarif Corporation, Santa Clara, California) is maintained to track patients seen within the practice. We retrospectively reviewed the records in this database for the keywords "atopic dermatitis" and "eczema." All patients had been seen by a single observer (the author), a general pediatrician.

Definitions

All diagnoses of eczema and atopic dermatitis were made using the definitions suggested by Sweet³ and Sampson.⁴

As defined by Sweet, eczema is "an irritating papular eruption, focal or diffuse, which may become exudative, crusted, scaly, or lichenified and which may be expected at some stage to show spongiosis with superficial vasodilatation and lymphocytic infiltration, no matter where on the body it occurs or what may have contributed to its cause."^{3,93} All patients diagnosed as having atopic dermatitis met Sampson's⁴ three major criteria for atopic dermatitis: family history of atopic disease; typical facial or extensor eczematous or lichenified dermatitis; and evidence of pruritus. These patients also met Sampson's⁴ three minor criteria for atopic dermatitis: of postauricular fissures; chronic scaling of the scalp; and xerosis, ichthyosis, or hyperlinear palms.

The observer consistently applied Sweet's³ and Sampson's⁴ criteria to all patients treated during the enrollment period, 1996-98.

Statistical Analysis

A chi-squared test was used to calculate a p value of <0.01 for the hypothesis that the Filipino population had a higher prevalence of atopic dermatitis and eczema than all others.

Results

Ethnic data were available for 5912 patients in the study population. Ethnicity was designated as white (not of Hispanic origin), Hispanic, black, Filipino, other Asian, or mixed race (Table 1).

The prevalence of atopic dermatitis was determined to be 3.2% in the overall study population (Table 2), 3.7% of whom were black, 8.5% Filipino, 2.0% Hispanic, 2.8% white (not of Hispanic origin), 3.2% mixed race, and 5.6% other Asian origin.

Discussion

Prevalence of these diseases by ethnic group showed marked variation, ranging from a high of 8.5% (in Filipino patients) to a low of 2.0% (in Hispanic patients,

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Table 1. Sampson's⁴ criteria for atopic dermatitis.

Major Criteria
Family history of ectopic disease
Typical facial or extensor eczematous or lichenified dermatitis
Pruritus
Minor Criteria
Postauricular fissures
Chronic scaling of scalp
Xerosis, ichthyosis, or hyperlinear palms

Table 2. Prevalence of atopic dermatitis by ethnicity in a pediatric practice

Ethnicity	No. patients affected	Total no. patients	Percentage of patients affected
Black	28	767	3.65
Filipino	48	562	8.54
Hispanic	53	2643	2.01
White (not of Hispanic origin)	45	1597	2.82
Mixed	8	253	3.16
Other Asian	5	90	5.56
All	187	5912	3.16

predominantly of Mexican origin). Ethnic differences have been described by British authors,^{1,2,5} and Williams et al² described a prevalence of 16.3% in black children of Caribbean origin and 8.7% in white (not of Hispanic origin) children. Palacios et al⁵ postulated polygenic inheritance, and also cited a 13.6% prevalence in white (not of Hispanic origin) and a 10.5% prevalence in black patients attending a der-

matology and allergy clinic. Discussions between this author (R.B.B.) and US Navy physicians who served in the Philippines support our observation that a high prevalence of atopic dermatitis and eczema is commonly seen in the Philippines.

The data are possibly flawed inasmuch as all ages are grouped into one data set. Atopic dermatitis is known to have a peak incidence in early infancy and then to abate in children younger than 5 years. The data probably underrepresent the prevalence in that age group because patients aged up to 18 years may enter the practice.

Because this study was conducted by only one physician in a limited geographic area, we cannot assume that the population studied typically represents the overall Filipino population in the United States or in the Philippines; the actual prevalence of atopic dermatitis and eczema probably varies considerably by geographic area. Moreover, the population served by our pediatric clinic is not ethnically representative of the overall US population. In particular, although we observed a higher prevalence of eczema and atopic dermatitis among patients of "other Asian" origin, this group included too many subsets for separate analysis (ie, Japanese, Korean, Chinese, Laotian, Vietnamese, Cambodian, and other ethnic groups were included).

In advising their patients, physicians serving populations known to be at high risk for atopic dermatitis and eczema should find the information presented here useful. ❖

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References

1. Bowker NC, Cross KW, Fairburn EA, Wall M. Sociological implications of an epidemiological study of eczema in the City of Birmingham. *Br J Dermatol* 1976;95:137-44.
2. Williams HC, Pembroke AC, Forsdyke H, Boodoo G, Hay RJ, Burney PG. London-born black Caribbean children are at increased risk of atopic dermatitis. *J Am Acad Dermatol* 1995;32(2 Pt 1):212-7.
3. Sweet RD. A pattern of eczema in Jamaica. *Br J Dermatol* 1966;78:93-100.
4. Sampson HA. Atopic dermatitis. *Ann Allergy* 1992;69:469-79.
5. Palacios JJ, Sachno R, Blaylock WK. Inheritance patterns in patients with asthma, allergic rhinitis and eczema. *South Med J* 1968;61:1172-4.