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Clinical presentation of atopic dermatitis in Negroid children

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Abstract

Clinical findings in 54 consecutive negroid children with atopic dermatitis (AD) are presented. The age range was 0.25 to 10.25 years. Male:Female ratio was 1.2:1. Time of onset range between 1 week and 8 years with onset before the age of 1 year in 81.1%. Facial and flexural involvement were observed in 81.5% and 70.4% of patients respectively. The latter was more common after the age of two years. Keratosis pilaris, repeated skin infections and ichthyosis were observed in 72, 45, and 40 per cent of the children. Allergic conjunctivitis was present in 11.8%. The findings suggest that the clinical presentation of AD in Negroid children is similar to that in white children.

Resume

Les résultats d'examens cliniques de 54 enfants de race noire atteints de dermatose atopique, sont présentés. L'âge était compris entre 0.25 et 10.25 ans. Le rapport garcons/filles était de 1.2 pour 1. La période d'attaque était comprise entre 1 semaine et 8 ans et dans 81.1% des cas, elle avait lieu avant l'âge de 1 an. Les localisations faciales et plicaturales ont été observées respectivement dans 81.5% et 70.4% des patients. Des kératoses pilaires, des infections cutanées récurrentes, des ichthyoses ont été notées respectivement dans 72, 45 et 40% des enfants. Une conjonctivite d'origine allergique était présente dans 11.8% des cas. En conclusion, les signes cliniques des dermatoses atopiques chez les enfants de race noire apparaissent identiques à ceux observés chez les enfants de race blanche.

Introduction

Atopic Dermatitis (AD) has an estimated incidence of 3% in white children living in temperate countries and appears to be on the increase[1,2,3]. Its etiology is believed to be multifactorial with both genetic and environmental factors playing a significant role[4]. Although community based studies on epidemiology of AD have not been undertaken in Negroid populations, Olumide (1986) reported a morbidity rate of 3.1% after reviewing 4000 consecutive patients with skin diseases at a teaching hospital in Nigeria[6]. At our national referral and teaching hospital paediatric skin clinic, AD is responsible for the majority of consultations[7]. Davis *et al* (1961) observed that Negroid West Indian children living in Britain had a higher incidence than white children seen at the same hospital[5].

The paucity of literature on AD in negroid children prompted us to undertake this descriptive study. A case controlled study (subject of a separate communication) was concurrently undertaken to evaluate the influence of skin contactants during infancy on evolution of AD.

Materials and methods

The study was carried out between June and November, 1985 at Kenyatta National and Teaching Hospital (K.N.H.) paediatric skin clinic. Consecutive patients, aged 12 years and below with diagnoses of atopic dermatitis (AD) were registered after obtaining informed consent from the parents.

Diagnosis of AD was made by an experienced dermatologist. Only patients with active AD lesions were included in the study. The diagnosis of AD was made on the basis of an itchy, chronic (more than 2 months duration) or chronically relapsing eczematous skin rash involving the face and/or extensor surfaces in early childhood (before 2 years) and flexures in older children as previously suggested by Hanifin and Lobitz[12]. In addition to the clinical features, good response to topical steroids had to have been previously observed. Re-examination by a second dermatologist was undertaken in doubtful situations and a final

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diagnosis arrived at by consensus. Patients with bullous skin lesions, non-pruritic eczematous rash involving the scalp and those who had been on steroids in the preceding one month were excluded. Detailed clinical data were reviewed for each patient using a standardized pretested questionnaire.

Appointments for eye examinations by an ophthalmologist were arranged for all patients categorized as having severe disease. Severity was on basis of disease activity and degree of dissemination.

For each patient, 'triple response' skin test was performed on normal skin on the ante-cubital fossa using a wooden match stick. The interscapular region was used whenever the former site was involved in the disease process. The response was read at 3 minutes and interpreted as positive whenever a palpable wheal developed. A minimum of two tests were performed before recording any results as negative. A control group of age and sex matched healthy children was similarly tested.

Two millilitres of blood were collected from each patient and deposited in specimen bottles containing dipotassium sequestrine. Later, thin film preparation were stained using May-Grunwald- Giemsa method and differential white blood cell counts reported by a blind observer. Stool was collected for determination of presence of ova and/or parasites using Ritche's modified method for stool concentration. The laboratory tests were similarly performed on the controls. For the purpose of this study, eosinophilia constituted a count above 6% in the absence of demonstrable intestinal worm infestation or a history of treatment for the same in the preceding one month.

Differences between groups were analyzed using the chi-square test.

Results

A total of 54 patients with AD were studied. Fifty were re-attendances and four were newly diagnosed. Their age range was 0.25-10.25 years with a mean of 3.25 (SD ± 2.82) years. The Male:Female ratio among the patients was 1.2:1. The age of onset of symptoms was reported as being under the age of 2 years in 83% of 53 out of 54 patients with available history. Onset was before 4 months in 58.5% (Table 1). Initial presentation involved facial or extensor sites in 86% of the patients as shown in Table 2. This pattern persisted into later childhood as shown in Table 3. Flexural involvement was however more of a feature in the older age group; 37.5% of infants compared to 73% of children above 1 year had flexural lesions.

Table 4 shows the frequency of skin changes associated with AD. Due to lack of consensus, clinical findings in 7 of the patients were not included in the analysis. Severe disease was observed in 22 of the patients. Of these, 17 turned up for eye examination and 11.5% were found to have conjunctivitis while none had either keratoconus or anterior subcapsular cataracts.

Table 1: Age at onset of atopic dermatitis

Age in Months	Number of Patients	Percentage
0 - 3	31	58.5
4 - 7	3	5.6
8 - 11	9	17.0
12 - 23	1	1.9
24 and above	9	17.0
Total	53	100.0

Table 2: Distribution of lesions at onset of atopic dermatitis

Age at Onset (Months)	Face Only	Flexure Only	Extensor Site Only	Multiple Sites	Unknown	Total
0 - 11	22	2	5	11	3	43
12 - 23	0	0	1	0	0	1
24 and above	0	5	1	3	0	9
Total	22	7	7	14	3	53

Table 3: Distribution of atopic dermatitis lesions at time of examination

Age in Months	Face, Flexure and Extensor	Face Only	Flexure Only	Extensor Only	Other	Total
0 - 11	3	5	0	0	8	16
12 - 23	4	1	1	0	3	9
24 months and above	14	0	3	1	11	29
Total	21	6	4	1	22	54

Table 4: Frequency of other skin changes associated with atopic dermatitis (Total Number = 47)

Type of skin change	Number	Percentage
Ichthyosis	19	40
Infra-orbital darkening	7	15
Keratosis Pilaris	34	72
Hyperlinear Palms	1	2
Pityriasis Alba	3	6
Non-Specific Hand Dermatitis	2	4
Repeated Skin Infections	21	45

The 'triple response' skin test was negative in 53% of the cases as compared to 9.3% of controls ($P < 0.001$). The percentage with a negative response increased to 63.5% among the patients when the test was repeated on diseased skin suggesting that involved sites might be less reactive.

Eight patients and sixteen controls had evidence of intestinal parasite infestation and their eosinophil counts were subsequently excluded from analysis. Of the remaining subjects, a significantly higher relative eosinophil count ($P < 0.01$) was found among cases than controls.

Discussions

No significant sex difference was observed in this study. Olumide[6] reported a similar Male:Female ratio (1:1.3) among children and adults with AD studied in a comparable setting. Observations made by Sedlis *et al*[8] among infants and small children living in temperate countries were different in that more males than females were affected but the definition of "small children" were not given.

Majority of the mixed Negroid and Caucasian children with AD studied by Davis *et. al.*[1961], like our patients, developed the disease in infancy irrespective of race[5]. These authors also observed an age dependent distribution of lesions.

Allergic conjunctivitis was the most commonly reported eye complication of AD and the figure of 11.8% in this series is close to that of 14% reported by Solomon *et al* [9]. Further, keratoconus and anterior sub-capsular cataracts are rare[10] and none was detected in this study.

Davis *et al* [1961] reported higher absolute eosinophil counts among Negroid while compared to white children but both groups had significantly higher counts than controls[5]. In this series, relative eosinophilia was significantly more prevalent among cases than controls. Albeit an absolute eosinophil count would have been more meaningful, this was not technically feasible at the time this study was undertaken.

The 'triple response' skin test was substituted for 'white dermographism' as the latter would have been difficult to detect in dark skin. Even though lack of blinding was a potential source of bias in eliciting this sign, we none-the-less believe that it can be of significant diagnostic value when used alongside other criteria. Affected skin was found to be less responsive than normal skin. Champion *et al*[1963] made similar observations[11]. This may have been due to presence of more advanced neuro-vascular reactivity compromise.

The findings of this study indicate that presentation of AD in Negroid children is not substantially different from that in Caucasians. The same diagnostic criteria (but slightly modified to accommodate difference in skin colour) used in

temperate countries[12] appears to be justified for use in Negroid populations.

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