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Stigmata of Atopy in Children in Dermatology-Venereology Department of National University Hospital Center Hubert Koutoukou Maga of Cotonou

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Abstract

Introduction: manifestations of atopy such as asthma, allergic rhinitis, allergic conjunctivitis, and food allergy constitute atopic disease. They are accompanied by minor signs which are the stigmata or particular expressions of atopy. These stigmata of atopy have been the subject of few studies in Africa.

Patients and methods: This was a cross-sectional retrospective study conducted in the Dermatology-Venerology department of NUHC-HKM (Cotonou-Benin). It examined the records of children aged 0-14 years seen between January 1st, 2003 and December 31th, 2007 and in whom atopic stigmata was recorded.

Results: The prevalence was 32.80%. The mean age of atopic children was 5.54 years. The sex ratio male/female was 0.92. Allergic asthma and rhinitis were the most frequent antecedents in atopic children. The stigmata of atopy were found in 43.87% of children. The clinical stigmata most frequently observed in atopic children were: skin xerosis (22%); the sign of Dennie Morgan (14.5%) and eczematides (10.6%).

Keywords: Stigmata; Atopy; Child; Cotonou

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Introduction

Atopy is a hereditary predisposition to symptomatic reaction to various allergens such as house dust, mites, pollens, animal hair, food, etc. These manifestations include asthma, allergic rhinitis, allergic conjunctivitis, food allergy and atopic eczema [1]. They are accompanied by so-called minor signs, which are the particular expressions or stigmata of atopy. These stigmata of atopy, which by their presence defines the atopic terrain, allow the dermatologist to recognize a hereditary predisposition to allergic reactions. There have been few studies in Africa.

We have therefore proposed to study the epidemiological and clinical aspects of particular expressions of atopy in the Department of Dermatology and Venereology at the National University Hospital Center (NUHC) in Cotonou in order to identify the stigmata that are present high diagnostic value of atopic terrain.

Patients and Methods

A descriptive, transversal and retrospective study took place in the Dermatology-Venerology Department of CNHU Cotonou. It concerned all cases of children aged 0 to 14 years seen between January 1st, 2003 and December 31th, 2007 and in whom an atopic terrain, either personal or family, was noted. Atopic terrain is defined as the existence of at least one personal and/or familial history of atopic disease in a person. Atopic disease includes allergic rhino-sinusitis, allergic asthma, allergic conjunctivitis and

atopic dermatitis. Data were collected using forms filled from patient records. The counting and data analysis were done with the statistical software Epi Info 6.04dfr.

Results

From January 1st, 2003 to December 31th, 2007, 1494 children aged 0 to 14 years were seen in the Dermatology-Venereology Department of CNHU Cotonou; 490 children had atopy, hospital prevalence was 32.80%. **Table 1** shows the distribution of atopic children according to age and sex. The mean age of atopic children was 5.54 years with extremes ranging from 1 month to 14 years.

The sex ratio male/female was 0.92; Allergic asthma and rhinitis were the most frequent antecedents among atopic children with rates of 17.80% and 9%, respectively. Fifty-two percent (52%) of the parents had at least one allergic history. The most frequent antecedents of atopic children were allergic asthma (62%) and allergic rhino-sinusitis (50.40%). The allergic conjunctivitis (4.10%) and atopic dermatitis (1.60%) are the least frequent antecedents in parents. Stigmata of atopy or minor signs of atopy were found in 215 children (43.87%) **Table 2**.

Clinical stigmata most commonly seen in atopic children were cutaneous xerosis (22%), Dennie Morgan's sign (14.5%) and eczematides (10.6%). One hundred and fifty-five (31.63%) of the children had presented only one stigma, while 60 (12.24%) had at least two **Table 3**. The association sign of Dennie Morgan and cutaneous xerosis is the most frequent (28.33%) association. The sign of Dennie-Morgan, cutaneous xerosis, the eczematides and keratosis pilaris were associated in 2 patients.

Table 1 Distribution of atopic children according to age and sex.

Sex Age	Female	Male	Total	Percentage
Less than 6 months	13	16	29	5.92%
6 months-30 months	71	55	126	25.71%
2.5 years-7 years	75	98	173	35.30%
7 years-14 years	95	67	162	33.07%
Total	254	236	490	100%

Table 2 Frequency of clinical stigmata in 215 atopic children with atopic stigmata.

Clinical stigmata of atopy	Number	Percentage %
Cutaneous xerosis	108	22
Sign of Dennie Morgan	71	14,5
Eczematides	52	10,6
Keratosis pilaris	31	6,3
Icthyosis	9	1,8
Periorbital hyperpigmentation	7	1,4
Plantar keratoderma	6	1,2
Cheilitis	6	1,2
Scrotal tongue and desquamative glossitis	3	0,6
White dermographism	2	0,4
Palmar hyperlinearity	1	0,2
Total	**296**	

Table 3 Distribution of 60 atopic children between 2-4 stigmata of atopy.

Stigmates cliniques de l'atopie associées (n= 60)	Effectif	%
SDM+cutaneous xerosis	17	28,3
SDM+Cheilitis	4	6,7
SDM+Keratosis pilaris	4	6,7
SDM+Eczematids	5	8,3
SDM+HPO	1	1,6
SDM+cutaneous xerosis+Keratosis pilaris	3	5
SDM+cutaneous xerosis+Eczematides	2	3,3
SDM+cutaneous xerosis+(LS +GD)	3	5
SDM+cutaneous xerosis+Ichtyosis	1	1,6
SDM+cutaneous xerosis+Cheilitis	2	3,3
SDM+cutaneous xerosis+HPO	1	1,6
SDM+cutaneous xerosis +Eczematides+Keratosis pilaris	2	3,3
Total 1	**45**	**75**
Cutaneous xerosis+HPO	2	3,3
Cutaneous xerosis+Ichtyosis	3	5
Cutaneous xerosis+Cheilitis	2	3,3
Cutaneous xerosis+Eczematides	2	3,3
Cutaneous xerosis+Keratosis pilaris	1	1,6
Cutaneous xerosis+Keratosis pilaris+Eczematides	1	1,6
Cutaneous xerosis+Keratosis pilaris+keratodermia	1	1,6
Cutaneous xerosis+White dermographism	1	1,6
Total 2	**13**	**22**
Keratodermia+Keratosis pilaris	1	1,6
Eczematides+ Keratosis pilaris	1	1,6
Total (Total 1+Total 2)	**60**	**100**

SDM=Sign of Dennie Morgan; HPO=Hyper pigmentation orbital; (ST+DG)=Scrotal tongue+desquamative glossitis

Discussion

As our study is retrospective, it presents certain biases, not the systematic search for all stigmata. Nevertheless, it allowed us to identify the stigmata of atopy and to prioritize it in the Beninese child aged 0 to 14 years. The prevalence of atopic terrain was 32.80% among the children of the study. This rate is close to that founded by Kharfi [2], in Tunisia (35.90%) but is below that of Onunu [3,4], in Nigeria (46%) among children and beyond that of Castelain and Geraut [5], which are respectively 20% and 18.70%. Grosshans [6], on the other hand reported a rate varying between 33.70% and 56.40%. These differences may be related to the recruitment of different studies.

Two-thirds of our study population had age ranged from 1 month to 7 years with an overall mean age of 5.54 years. Only 44% of children had one or more stigma of atopy. Cutaneous xerosis is the most prevalent stigma. In the Koeppel study [7], it was present in 50-98% of cases. It seems therefore more prevalent in the white population than in the black population. This is explained by the high degree of hygrometry in Benin. Sign of Dennie-Morgan was observed in 14.50% in our study. Its presence is reported by Raynaud [8], and Koeppel [7], without specifying its prevalence.

Eczematids with a rate of 10.60% represented the third stigma in descending order of prevalence. Keratosis pilaris was found at a

rate of 6.30%; which is comparable to that of Raynaud [8], (2 to 6%). Ichthyosis was found in 1.80% of patients; this rate is similar to that of Koeppel [7], and Raynaud [8], which both report a rate of between 2 and 6%. Palmar hyperlinearity was present in 0.2% of the children in our study, while Koeppel [7], found it in 30-90% and Prigent [9], in 68.20% of the cases. This discrepancy in our results is due to the fact that this stigma is not usually sought during the consultation in our context.

Eczematide, periorbital hyperpigmentation, cheilitis and white dermographism, were stigmata rarely reported in the literature. The relatively low rates in our study of periorbital hyperpigmentation, cheilitis and white dermographism are probably due to the fact that their search by the dermatologist is not systematic. The same applies to the low hair implantation, the cholinergic whiteness and the facial pallor which are stigmata reported by Koeppel [7]. Our study concerns cases of black children with a skin tone that does not describe cholinergic whiteness or facial pallor.

The Dennie-Morgan sign was associated with other stigmata in 75% of cases and was the most commonly associated stigma among the 60 atopic children with more than one. Cutaneous xerosis was associated with other stigmas in 22% and is the second most commonly associated stigma in the 60 atopic children after the Dennie-Morgan sign. The association of the Dennie-Morgan sign and the cutaneous xerosis is the most frequent association with a rate of 28.30%. Two patients (3.33%) had a combination of 4 stigmata: Dennie-Morgan sign, Cutaneous Xerosis, Eczematids and Keratosis pilaris. The rare associations of stigmata were keratoderma-keratosis pilaris, eczematide-keratosis pilaris, sign of Dennie Morgan-peri-orbital hyperpigmentation and cutaneous xerosis-keratosis pilaris. These rare associations could not be considered as having a high diagnostic value of atopy in the absence of a personal or family history in a child. However, the presence of the sign of Dennie Morgan and/or cutaneous xerosis, in the absence of a personal or family history of atopy in child, could henceforth be considered as objective and highly diagnostic signs of the atopic terrain. Yédomon et al. have made the same observation in their 2011 publication [10].

Conclusion

Our study, despite its inadequacies, has identified the stigmata of atopy in children aged 0 to 14 years in the Department of Dermatology-Venerology of the NUHC-HKM Cotonou and to specify their prevalence. Indeed, it was especially important to note that the presence of Dennie Morgan's sign and/or cutaneous xerosis has a high diagnostic value of atopic terrain in the absence of a personal or family history of atopy in children in Cotonou.

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