RESEARCH ARTICLE

Epidemio-clinical Profile of Atopic Dermatitis in Children in General Population in Parakou (Benin)

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ABSTRACT

Introduction: The aim of this study was to determine the epidemiological and clinical profile of atopic dermatitis (AD) in children in Parakou (Benin). **Materials and Methods:** This was a cross-sectional, descriptive, and analytical study of children aged 0–15 years old, selected after a two-stage cluster survey carried out. The diagnosis of AD was laid the basis of the criteria of the working group of the United Kingdom (UKWP). Data were analyzed with the Epi-info version 3.5.1. **Results:** A total of 157 children with AD were selected between 2160 (7.27%). Their mean age was 4.74 ± 4.33 years old. The sex ratio was 1.57 and the majority of children (80.25%) were doing their pushes regardless of the climatic season. The predominant elemental lesions were erythema (91.97%), crusts, erosions (74.45%), and vesicles (40.88%). Some children had at least two lesions. The most recognized minor signs of atopy were cutaneous xerosis (91.97%) and Dennie-Morgan sign (76.64%). Lesions were predominant in the retroauricular folds (41.61%). The dominant clinical forms were vulgar eczema (48.18%), lichenified forms (32.85%), and impetiginized forms (24.09%). According to the Scoring Atopic Dermatitis (SCORAD), 67.15% had moderate AD. **Conclusion:** The frequency of AD in children in Parakou is not negligible and the clinical manifestations are varied.

Key words: Epidemiology, Clinical, Atopic dermatitis, Children, Parakou

INTRODUCTION

Atopic dermatitis (AD) is a pruritic inflammatory dermatosis with a genetic predisposition that evolves by recurrent flare-ups affecting mainly infants and small children.[1] Worldwide, its prevalence has doubled or tripled over the past 30 years.[2] In Africa, the disease is increasingly reported.[3-5] Although AD is not lethal, it can result in significant morbidity and societal cost.[6] Thus, AD is now a real public health problem. In Parakou, in the north of Benin, no data on AD were known. The aim of this study was to determine the epidemiological and clinical profile of atopic dermatitis (AD) in children in Parakou, Benin. A preliminary census of all cases of AD received in the dermatology-venereology department at Borgou-Alibori CHU in Parakou (Benin) since its creation (from January 2009 to December 2017, i.e., 8 years) concluded that the hospital incidence was 1.6%,[7] and led us to carry out the study in the general population.

MATERIALS AND METHODS

This was a transversal descriptive and analytical study that took place from April 30 to July 28, 2018. It was conducted in thirty neighborhoods/villages of the township of Parakou, capital of the Department of Borgou in the Republic of Benin. Children aged 0–15 years at the time of the survey

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were included in the study, selected after a two-stage cluster survey. The minimum sample size was determined using the Schwartz formula. The diagnosis of AD was selected on the basis of the UKWP diagnostic criteria:

An itchy skin condition (or parental report of scratching or rubbing in a child)

Plus three or more of the following
1. History of involvement of the skin creases such as folds of elbows, behind the knees, fronts of ankles, or around the neck (including cheeks in children under 10).
2. A personal history of asthma or hay fever (or history of atopic disease in a 1st-degree relative in children under 4).
3. A history of a general dry skin in the last year.
4. Visible flexural eczema (or eczema involving the cheeks/forehead and outer limbs in children under 4).
5. Onset under the age of 2 (not used if child is under 4).

Clinical and epidemiological data were collected using a pre-established and pre-validated questionnaire in two villages in the township of Tchaourou not included in this study. All children were examined by a dermatologist. The data were entered using Epi data 3.5.1 software and analyzed using Epi-info version 3.5.1 software.

RESULTS

A total of 157 children with AD were diagnosed among 2160 interviewed and examined, a prevalence of 7.27% (95% CI of 6.23–8.42). Their average age was 4.74 ± 4.33 years with a sex ratio of 1.57 (96 males to 61 females). Most of the children (80.25%) had relapses regardless of the climatic season (dry or rainy).

Among the 157 children, the physical exam was abnormal in 137 children, that is, 87.26%, with four having generalized pruritic dermatosis and 133 having localized pruritic dermatosis [Figure 1]. Erythema (91.97%), and scabs and erosions (74.45%) were the predominant primary lesions [Table 1]. The minor signs of atopy noted in these 137 children were cutaneous xerosis (91.97%) and Dennie-Morgan's sign (76.64%). No white demography was noted [Table 2].

Retro auricular groove was the predominant site (41.61%), followed by the elbow fold (25.55%).
- Before the age of 2 years (*n*=46), the top 5 sites were retroauricular groove (18.98%); forehead (13.14%); cheeks (12.41%); elbow folds (10.22%); neck (8.76%); arm (8.76%); and forearm (7.30%).
- After 2 years (*n*=91), the first 5 sites are the retroauricular grooves (22.63%); the feet (17.52%); the elbow folds (15.33%); the axillary regions (14.60%); and the buttocks (13.87%).

Figure 1: Localized dermatosis on the wrist and back of the hand vesicles + erosions

Table 1: Different objectified elementary lesions

Elementary lesions (*n* =137)	Number	Percentage
Cracks	2	1.46
Pustules	8	5.84
Papules	12	8.76
Edema	13	9.49
Excoriations	18	13.14
Scales	23	16.79
Oozing vesicles	54	39.42
Non oozing vesicles	58	42.34
Scabs and erosions	102	74.45
Erythema	126	91.97

Table 2: Different stigmas of atopy noticed

Minor signs (*n*=137)	Number	Percentage
White demography	0	0.00
Cheilitis	2	1.46
Ichthyosis	2	1.46
Achromians eczematides	3	2.19
Periorbital hyperpigmentation	4	2.92
None	4	2.92
Palmoplantar hyperlinearity	9	6.57
Low hair implantation	9	6.57
Simple follicular keratosis	25	18.25
Retroauricular cracks	50	36.50
Dennie-Morgan's sign	105	76.64
Xerosis	126	91.97

Lichenification was the leading complication [Table 3] (32.85%), followed by impetiginization (24.09%) [Figure 2]. Eczema vulgaris (48.18%) was the predominant clinical

Table 3: Various complications observed

Complications (C) (*n*=137)	Number	Percentage
Growth retardation	0	0.00
Ophthalmology	0	0.00
Psychic impact	1	0.73
Contact dermatitis	2	1.46
Impetiginization	33	24.09
Lichenification	45	32.85

Figure 2: Lichenified and impetiginized eczema

form [Table 4], followed by lichenified (32.85%) and impetiginized (24.09%) forms. According to the AD severity score (SCORAD), 41 children (29.93%) had mild AD, 92 (67.15%) had moderate AD, and 4 (2.92%) had severe AD.

DISCUSSION

The main limitation of this study is inherent to the fact that allergological tests are not carried out due to the lack of access to reagents.

The prevalence of AD determined by our study is close to that found in Marrakech in 2015.[8] The one found in 2009 in Cotonou[4] is lower than ours (5.5%). However, it is much lower than those found in studies conducted in Yaoundé[9] and Togo.[10] This variability in results could be explained by the different methodologies adopted and the study populations.

The average age of children with AD (4.74 ± 4.33 years) was similar to that found in Lomé in 2015[10] and Marrakech in 2015.[8] However, it is different from that found in Cotonou in 2009,[4] who reported an average age of 247.2 months (20.6 years). This difference could be related to the choice of age groups in the conduct of epidemiological studies on AD.

Male predominance was noted in the present study as well as in the Maghreb and Moroccan series.[8,11] In contrast, the

Table 4: Clinical forms

Clinical forms (*n*=137)	Number	Percentage
Nummular eczema	0	0.00
Juvenile dermatitis plantar	0	0.00
Nipple eczema	0	0.00
Prurigo of Besnier	1	0.73
Atopic cheilitis	2	1.46
Erythrodermal eczema	4	2.92
Dysidrosic eczema	4	2.92
Impetiginized eczema	33	24.09
Lichenified eczema	45	32.85
Eczema vulgar	66	48.18

studies in Cameroon,[9] Togo (Lome),[10] and Cotonou (Benin) noted female predominance. This significant difference with the results of these three studies could be related to the action of certain factors considered to protect or promote atopic risk influenced by gender as suggested by Hagendorens *et al*.[12]

A total of 61.15% of children began the disease before the age of 2 years. An onset before the age of 2 years in all sick children (100%) was also noticed in Marrakech.[8] In Cotonou, on the other hand, in 2009, only 25.7% of patients started the AD before the age of two.[4]

Erythema (91.97%) and scabs and erosions (74.45%) were the predominant basic lesions. These results are similar to those found in Cotonou in 2009[4] as concerns xerosis (90%) and scabs and erosions (67.65%). However, erythema was present in only 50% of their patients. Furthermore, the presence of erythema was noted in 78.6% of patients in Marrakech in 2015,[8] but scabs and erosions were less frequent in their context (35.7%). This proportion of erythema found by the present study compared to the study conducted in Cotonou calls into question the difficulty of assessing (in defect or excess) erythema on black skin.

The site of lesions varied according to age in our study. Before the age of 2 years, the predominant site was the retroauricular groove, followed by the forehead and cheeks. The same observation was made in Marrakech in 2015.[8] On the other hand, Atadokpédé *et al*.[4] found that the limbs were the predominant site at this age. After 2 years, the predominant site was the retroauricular groove, followed by the feet and elbow folds. In Marrakech in 2015, Baino *et al*.[8] found 100% localization in the cheeks at this age.

CONCLUSION

This study allowed us to observe that AD is a reality among children in Parakou in the north of Benin and that it should not be neglected. Contrary to the study carried out in the south

of Benin (in Cotonou in 2009) in the hospital population, this one had the merit of taking stock of the situation of AD in the general pediatric population. A better knowledge of the manifestations of AD would help physicians in general and pediatricians in particular to better manage it. The majority of these children do not come to the dermatologist's office as a first-line treatment; especially in our sub-Saharan African countries where access to specialized care is still a luxury for the most vulnerable populations.

REFERENCES

1. Dammak A, Guillet G. Atopic dermatitis in children. J Pediatr Child Care 2011;24:84-102.
2. Catteau B. Atopic dermatitis: Epidemiology and current clinical data. Rev Fr Allergol Immunol Clin 2002;42:373-7.
3. Kobangué L, Piamalé G, Bureau JJ, Sépou A. Epidemiological and clinical aspects of atopic dermatitis at the National Hospital and University Centre of Bangui. Ann Dermatol Venereol 2007;134 Suppl 1:S98.
4. Atadokpédé F, Adégbidi H, Koudoukpo C, Agbessi N, Yedomon H, do-Ango-Padonou F, *et al*. Atopic dermatitis in Cotonou, Benin: Clinical and therapeutic aspects. Dakar Med 2012;57:1-7.
5. Nnoruka EN. Current epidemiology of atopic dermatitis in South-Eastern Nigeria. Int J Dermatol 2004 43:739-44.
6. Yu SH, Attarian H, Zee P, Silverberg JI. Burden of sleep and fatigue in US adults with atopic dermatitis. Dermatitis 2016;27:50-8.
7. Koudoukpo C, Akpadjan F, Agbessi N, Dégboé B, Nouhoumon G, Adégbidi H, *et al*. Epidemiological aspects of atopic dermatitis in Borgou-Alibori Teaching Hospital of Parakou (Benin). Health Sci Dis 2019;20:94-7.
8. Baino A, Hocar O, Akhdari N, Amal S. Prevalence and clinical-epidemiological profile of dermatitis atopic in Morocco. Ann Dermatol Venereol 2016;143 Suppl 1:S43-4.
9. Djénabou A. Atopic eczema in adolescents in Yaoundé, Cameroon. Rev Fr Allergol 2017;57:265-83.
10. Técléssou JN, Mouhari-Toure A, Akakpo S, Bayaki S, Boukari OB, Gnassingbe W, *et al*. Risk factors and allergic manifestations associated with atopic dermatitis in Lomé (Togo): A multicenter study of 476 children aged 0-15 years. Méd Santé Trop 2016;26:88-91.
11. Baghou S, Bensaad D, Taieb A, Ammar-Khodja A. Prevalence and clinical profile of atopic dermatitis in Algeria. Ann Dermatol Venereol 2012;139:140.
12. Hagendorens MM, Bridts CH, Lauwers K. Perinatal risk factors for sensitization, atopic dermatitis and wheezing during the first year of life (PIPO study). Clin Exp Allergy 2005;35:733-40.

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