

Meaning of microalbuminuria during the atopic dermatitis of the child

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ABSTRACT

Objectives: Advocate early diagnosis of vascular diseases in children with atopic dermatitis. Determine children at vascular risk during atopic dermatitis. **Method:** The study is transversal and analytical; performed in the University of Brazzaville Medical Center in 18 months. It focuses on children from 0 to 15 years old with atopic dermatitis. The anthropometric, clinical, and antecedent data are collected on cards as well as the balance necessarily including: fasting blood glucose, serum immunoglobulin E (IGE) and microalbuminuria. **Results:** 80 patients were selected, 47 girls and 33 boys. The mean age was 8.9 years SD \pm 4.646. Obesity is found in 21.25% of cases. 82, 5% of children had hypertensive parents or diabetics in the first degree. Microalbuminuria was positive in 53.75% of cases. It was independent of age and sex and more common in children with hyper IgE. **Conclusion:** The study reports arguments for a vascular predisposition and show the interest of achieving microalbuminuria in atopic dermatitis.

Key words: Atopic dermatitis; Arterial hypertension; Diabetes; Microalbuminuria; Child

INTRODUCTION

Atopic dermatitis (AD) is an inflammatory, pruritic and chronic condition of complex etiopathogenesis with implications for hereditary factors and environmental antigens [1]. Atopic dermatitis can be considered as a systemic disease [2], its clinical diagnosis is done by the criteria of the United Kingdom Working Party.

DA is a model of polygenic inheritance that is accompanied by stimulations of secretion of polypeptide substances and chemical mediators with vasoactive activity [1]. Some metabolic manifestations such as obesity and some idiopathic nephrotic syndromes are described in AD [3,4]. The occurrence of arterial hypertension during atopic dermatitis has been suggested [5].

The authors conducted a hospital study to look for a link between AD and common vascular pathologies such as diabetes, high blood pressure and obesity. The

interest of this study is to advocate early detection and prevention of vascular diseases in children with AD.

PATIENTS AND METHOD

It is a transversal and analytical study, carried out in University of Brazzaville Medical Center in consultation from January 2015 to July 2016. The study is made by a Dermatologist and a nephrologist hospital-university.

Inclusion criteria were: patients aged 0-15 years with AD. Exclusion criteria were: urinary tract infection or other active infection, ongoing or long-term steroid therapy.

The clinical and laboratory parameters studied were: body mass index, personal and family history of diabetes, high blood pressure, asthma, ambulatory blood pressure measurement with a suitable cuff, fasting blood glucose, blood count, C reactive protein, cytobacteriological examination of urine, ADDIS count, serum immunoglobulin E (IGE), microalbuminuria.

How to cite this article: Lenga Loumingou IA, Loumingou R. Meaning of microalbuminuria during the atopic dermatitis of the child. Our Dermatol Online. 2019;10(3):251-254.

Submission: 14.04.2019; **Acceptance:** 01.05.2019

DOI: 110.7241/ourd.20193.5

Microalbuminuria was performed on urination, it was considered positive when it was greater than 20ml/g.

The diagnosis of AD was made thanks to the criteria of the United Kingdom Working Party. The severity of the AD was defined by the SCORAD index.

The information was recorded on cards. Data analysis was done by SPSS for calculating averages, standard deviations and correlations.

RESULTS

Epidemiological aspects

374 children were received during the study period among them, 87 had an AD (23.6%) and 80 met the criteria of the study. There were 33 boys and 47 girls. The M/F ratio was 0.7. The average age was 8.9 years SD \pm 4.646 years. The average age of girls was 10.19 ± 4.08 and 7.24 ± 4.89 for boys (P = 0.099).

Clinical aspects

There was no diabetes or ongoing hypertension in the patients. 13 children were asthmatic (16.25%), 17 obese children (21.25%), 66 children had parents with diabetes or hypertension (82.5%); distributed as follows: high blood pressure (n = 46), hypertension and diabetes (n = 12), diabetes (n = 8).

Biological aspects

Microalbuminuria was positive in 43 cases (53.75%). Mean microalbuminuria was 24.20 ± 21.40 . This average was evaluated at 27.4 ± 28.57 for boys and 21.93 ± 14.35 for girls (P = 0.016). 80% of children with microalbuminuria had hypertensive or diabetic parents. IgE was elevated in 45% of patients. The average IgE was 339.2 ± 371.5 .

Correlation between microalbuminuria and the different variables studied

Positive microalbuminuria was found in 47.3% of children in the 0 to 4 age group, 50% had positive microalbuminuria in the age group of 5 to 9 years, and 60% between 10 and 15 years old. The Pearson correlation rate is 0.022, bilateral significance 0.845 (Table 1). The averages of microalbuminuria with respect to age are shown in Fig. 1.

Positive microalbuminuria was found in 45% of children who have hyper IgE. The Pearson correlation was 0.212;

Table 1: Correlations between microalbuminuria and different variables

	Age	Microalbuminy	IGE
Age			
Correlation of pearson	1	0.022	0.208
Sig. (bilateral)		0.845	0.063
N	80	80	80
Microalbuminy			
Correlation of pearson	0.022	1	0.212
Sig. (bilateral)	0.845		0.059
N	80	80	80
IGE			
Correlation of pearson	0.208	0.212	1
Sig. (bilateral)	0.063	0.059	
N	80	80	80

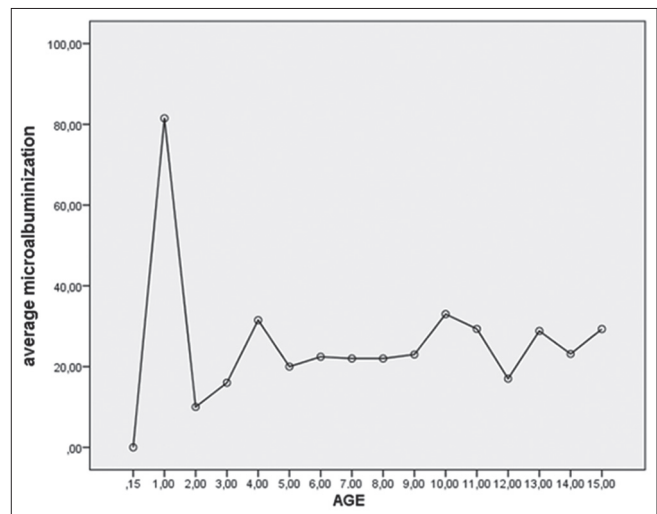


Figure 1: Microalbuminurie and age.

Bilateral significance 0.059. The microalbuminuria averages by age group are shown in Fig. 1. There were 13 asthmatic patients among whom 5 (38.4%) had microalbuminuria. Severe AD exist in 23.75% cases, 73.6% of whom had hyper IgE and positive microalbuminuria.

DISCUSSION

Atopic dermatitis is an inflammatory, pruriginous and spongiotic disease [6]. It is considered a systemic disease [2]. prevalence of AD is high but varies by study [7-9]. The classic feminine predominance is found in our study [10]. The penetrance of AD is variable, comorbidity is common [11] other manifestations of atopy are often associated. In the study, 16.25% of children were asthmatic, 24.7% had AD strict.

The physiopathology of AD is complex [1]; it is accompanied by stimulations, secretions of chemical

mediators and a high cellular activity [12]. These mechanisms are arguments for an alteration of the endothelial tissue. There is a relationship between inflammatory mediators and vascular and metabolic risk factors: interleukin 6 induces insulin resistance [13], cytokines (TNF, IL6, interferon gamma) have a pro-inflammatory role [14], T h 1, T h 2 regulatory T lymphocytes, whose activity is crucial in AD, induce atherosclerosis [15], podocyte damage is found in the idiopathic nephrotic syndromes of atopic subjects [16].

The arguments for a vascular predisposition in our study are: 82.5% of first degree parents were diabetic and or hypertensive, the positivity of microalbuminuria in 53.75% of children.

The association of AD with obesity, diabetes and arterial hypertension is gaining acceptance [17,18]. The link between idiopathic nephrotic syndrome and atopic dermatitis has been suggested [4,16]. In our study 26.25% of children were obese. No child was hypertensive or diabetic. For Zhang [19], obesity is controversial in AD but is frequently reported in studies such as Kusunoki [3] and Lim [20]. The small sample in the study did not allow us to associate obesity with AD. Microalbuminuria reflects either a rise in capillary pressure or an alteration of the triple glomerular barrier or a generalized endothelial dysfunction it is a risk factor cardiovascular whose interest is established in the management of diabetes and high blood pressure [21]. Positive microalbuminuria appeared to exist independently of age, more than half of the patients had positive microalbuminuria. We did not find an explanation for the peak before the age of two. The positivity of microalbuminuria appeared to be related to the elevation of immunoglobulin E and the severity of AD.

CONCLUSION

The existence of pathological microalbuminuria in children with AD seems to be relevant. It seems important to systematically look for personal and familial vascular risk factors in children with AD, to ensure optimal prevention of common vascular diseases.

Statement of Human and Animal Rights

All procedures followed were in accordance with the ethical standards of the responsible committee on

human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008.

Statement of Informed Consent

Informed consent was obtained from all patients for being included in the study.

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Source of Support: Nil, **Conflict of Interest:** None declared.