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ORIGINAL RESEARCH

Nutritional Status and Severity of Atopic Dermatitis in Children in a Hospital Setting in Kinshasa, Democratic Republic of the Congo

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Background and Objective: Several authors have unanimously evaluated therelationship between obesity alone and atopic dermatitis (AD). The aim of the present study was to investigate the correlation between nutritional status and the severity of AD in Congolese children.

Methods: A cross-sectional, descriptive study was conducted over 6 months (November 2023 to April 2024) at two sites selected for logistical reasons: University Clinics of Kinshasa and Ngaliema Medical Center, in the dermatology and pediatric consultation departments. The study population consisted of all children aged 0–18 years with atopic dermatitis. Statistical analyses were performed using SPSS 26.0, with a significance level of $p<0.05$.

Results: Of 684 children examined, 259 (37.9%) had AD. The M/F sex ratiowas 0.8%. The median age was 6 years (3–11 years), with a higher proportion of children aged 0–5 years (53.3%). Moderate AD was more frequent (56%), without statistical significance. Severe malnutrition and underweight were protective factors against AD in the 0–5 and 6–18 age groups respectively [p = 0.985; OR 0.1 (0.01–0.2)].

Conclusion: Nutritional status in atopic children has no impact on the expression of atopic dermatitis. Etiological studies of the case-control or prospective cohort type would enable this assertion to be verified.

Keywords: atopic dermatitis, nutritional status, child, Democratic Republic of Congo

Introduction

Atopic dermatitis (AD), also known as "atopic eczema", affects 15 to 20% of children in France.[1] It is one of the most common reasons for pediatric dermatology consultations, representing the most frequent chronic dermatosis in children.[2] AD is a multifactorial disease, linked to the interplay of environmental, immunological, and genetic factors. A disruption in the immune response, particularly an imbalance of certain cytokines, remains the most probable pathophysiological hypothesis.[3,4] Additionally, epidemiological studies showing a rapid increase in the prevalence of the disease in recent decades[2] seem to indicate that environmental influences, particularly urbanization, play a role in the onset of atopic dermatitis. This suggests the role of environmental factors in the pathophysiology of the disease. An "urban Western" lifestyle is associated with a higher risk of atopic diseases compared to a "rural" lifestyle, especially in genetically homogeneous and geographically close populations.[3] More recent European and Asian studies[5–7] establish a link between atopic dermatitis and body mass index (BMI); some report an association between moderate to severe AD and high BMI,[5,6] while others find a correlation between underweight and less severe AD.[7] However, intestinal dysbiosis in cases of thinness could affect the skin microbiota in any individual, and particularly in those with atopy.[8] This imbalance could

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worsen the severity of AD.[9,10] In the Democratic Republic of Congo (DRC), studies have reported a prevalence ranging from 11.2% to 12.4%.[11,12] Risk factors were observed in 47.8% of cases, with diet being the leading factor in 13.3% of cases in the city of Goma.[12] This would help contextualize the management of AD, taking into account genetics, mental health, environment, diet, and nutritional status. The main objective of this study is to assess the association between atopic dermatitis and nutritional status in children in a hospital setting in Kinshasa.

Methods

Nature, Duration, and Location of the Study

This was a cross-sectional and descriptive study conducted over a period of 6 months, from November 2023 to April 2024, at the University Clinics of Kinshasa and Ngaliema Medical Center. These hospitals were chosen based on logistical considerations, specifically in the dermatology and pediatric consultation departments.

Sampling

Sample Size

We employed simple random probability sampling for data collection.

The sample size was calculated using Fisher's formula:[13]

$n \geq Z^2 \times p(1-p) / d^2$

n = sample size; Z = 1.96 (confidence coefficient); p = previous prevalence

d = 0.05 (margin of error or the desired degree of absolute precision).

Considering the likely non-respondents, we added 10% to the calculated number. We used 11.1% as the prevalence of atopic dermatitis at the University Clinics of Kinshasa, based on the cumulative probability from Seudjip and al.'s studies.[11] The sample size calculated was:

$n \geq (1.96)^2 \times 0.111 \times 0.889 / (0.05)^2 = 152$

Including the 10% non-respondent factor, the final sample size was 157 children.

Inclusion Criteria

Patient selection was based on anamnesic and clinical parameters.Eligible participants for the study were children aged 0 to 18 years, of both sexes, who were seen in dermatology consultations and diagnosed with atopic dermatitis during the study period. Informed verbal consent from the parent or guardian, as well as verbal assent from the child, were required. Children who were not eligible for the study included those who consulted outside the designated study period, those who did not have atopic dermatitis, and those for whom informed consent from the parent or guardian was not obtained.

Selection of Study Site

The University Clinics of Kinshasa and Ngaliema Medical Center were selected for the study, specifically the dermatology departments, due to logistical convenience, financial constraints, and accessibility of these two sites for data collection.

Materials Used

The following materials were used for the implementation of this study: data collection forms; research authorization letter; patient medical records; department admission registry; a laptop and USB drive; A4-sized sheets of paper; pens; two pediatric scales; two measuring tapes; investigators; and patients.

Study Procedure

The principal investigator had previously obtained the necessary approvals from the relevant authorities for the smooth conduct of the study at the selected sites. Daily consultations were conducted by the principal investigator,

a dermatologist and two other dermatology assistant physicians who had been trained and instructed in data collection.On consultation days, each child was seen with their guardian or parent. After providing information about the study and obtaining verbal consent from the parent or guardian, as well as the child's assent, a clinical examination was performed on those who met the inclusion criteria for the study.Photographs were taken of children who had atopic dermatitis, ensuring their faces were covered.The entire procedure was carried out while ensuring anonymity was maintained.

Data Collection and Variables of Interest

Data were collected using pre-established data collection forms specifically designed for the survey. These data were then categorized into the following parameters of interest: Epidemiological characteristics, including sociodemographic (age, sex, socioeconomic status of the head of the family), family, and environmental factors (residential area, number of rooms, presence of carpets in the house, presence of curtains in the house, presence of covered mattresses in the rooms, presence of pets on the property, the child's position within the family). Clinical characteristics of the study population (medical history, previous dermatosis, similar dermatosis in the family, pregnancy term, delivery method, type of feeding during the first six months of life, vaccination schedule, any ongoing treatments, number of baths per day, type of soap used, type of body topical treatment, atopy, nutritional status), Atopic dermatitis characteristics, including clinical diagnosis of atopic dermatitis and its severity.

Operational Definitions

Sociodemographic Characteristics

- **Age**: The period of life elapsed from birth to the day of the survey. Age was categorized into the following groups: 0–5 years, 6–12 years, and 13–18 years.
- **Socioeconomic Position Index (SEPI)**: This is a criterion used to classify an individual relative to the population based on their age (A), level of education (LE), and professional category (PC).SEPI = age of the head of the family (years) - 6 × LE - 4 × PC + 55.[14] The SEPI was scored as follows: 1–35 for the lower class, 36–54 for the lower-middle class, 55–67 for the middle class, 68–80 for the upper-middle class and 80 for the upper class.

Family and Environmental Characteristics

- **Residential Area**: The commune where the household where the child lives is located.
  - **Rural**: Includes all communes that have a rural neighborhood (Mont Ngafula, Maluku, and Nsele).
  - **Urban-Rural**: Includes communes that do not have a rural neighborhood (all other communes).
- **Number of Rooms**: The number of bedrooms in the household where the child lives.
- **Presence of Carpets in the House**: Refers to soft textile coverings placed on the floor of the household where the patient lives.
- **Presence of Curtains in the House**: Refers to a piece of fabric used to filter light from a window or door in a residential building.
- **Presence of Covered Mattresses in the Rooms**: Refers to mattresses covered with waterproof or non-waterproof covers.
- **Presence of Pets on the Property**: In this study, this refers to dogs and cats.
- **Child's Position in the Sibling Group**: Refers to the position the child occupies among their siblings based on their different birth dates.

Clinical Characteristics of the Study Population

Medical History

Previous Dermatosis: A skin condition previously observed in the patient.

Similar Dermatosis in the Family: The presence of atopic dermatitis in another family member (parent or sibling).

Gestational Term: The time elapsed between the last menstrual period and the patient's delivery: (Preterm: Before 37 weeks of amenorrhea; Term: Between 37 and 42 weeks of amenorrhea; Post-term: After 42 weeks of amenorrhea).

Delivery Method: Vaginal delivery or cesarean section.

Type of Feeding During the First 6 Months of Life: Exclusive breastfeeding; Exclusive formula feeding and family food; Mixed (breast milk and formula; family food).

Vaccination Schedule: Up-to-date (complete vaccination coverage for the child on the day of the survey) or not up-to-date (incomplete vaccination coverage for the child on the day of the survey).

Any Current Steroid Treatment During the Survey: Dermocorticosteroids; Inhaled or ingested corticosteroids; No treatment.

Type of Soap Used for Bathing: Pediatric (soap designed and adapted for children's skin); Non-pediatric (soap unsuitable for children's skin).

Number of Baths Per Day: 1 bath/day; More than 1 bath/day.

Atopy: The presence of one or more atopic conditions (asthma, allergic rhinitis, allergic conjunctivitis, and atopic dermatitis) in the child, sibling, or parents.

Clinical Characteristics of Atopic Dermatitis

The clinical diagnosis of atopic dermatitis was established according to the latest consensus of the United Kingdom Party.[15] This means that pruritus (itching) must be associated with at least three of the following criteria: Personal history of flexural dermatitis (in the antecubital fossae, popliteal fossae, anterior ankles, neck) and/or on the cheeks in children under 10 years of age; personal history of asthma or allergic rhinitis (or family history of atopic disease in a first-degree relative in children under 4 years old); personal history of generalized dry skin within the past year; eczema in large flexural areas or eczema on the cheeks, forehead, and convex areas of the limbs in children under 4 years old; onset of skin signs before the age of 2 (criterion applicable only to children over 4 years old).

In this study, the severity of atopic dermatitis was assessed using the SCORAD (Scoring Atopic Dermatitis) scale based on three criteria:[16] A = Extent of lesions, assessed using the Wallace Rule of Nines; B = intensity, evaluated based on six elements: erythema, edema/papules, excoriation, lichenification, exudation/crusts, and dryness, each rated from 0 to 3 points during the physical examination. The total score ranged from 0 to 18 points; C = subjective symptoms, including pruritus and/or insomnia, scored from 0 to 10 points.

This scoring system allowed for classification of the severity of atopic dermatitis according to the SCORAD formula: A/5 + 7B/2 + C. The different severity grades are as follows: mild (<25), moderate (25–50) and severe (51–103).

In this study, nutritional status was defined by anthropometric parameters for children aged 0–5 years[17] and by body mass index (BMI) for those aged 6–18 years.[18]

Children Aged 0 to 5 Years

- **Severe malnutrition**: W/H (Weight for Height) < −3 Z-score
- **Moderate malnutrition**: W/H < −2 and ≥ −3 Z-score
- **Risk of malnutrition**: W/H between −2 and −1 Z-score
- **Normal nutritional status**: W/H between −1 and +1 Z-score
- **Risk of obesity (overweight)**: W/H between +1 and +2 Z-score
- **Obesity or overnutrition**: > +2 Z-score

Children Aged 6 to 18 Years

- **Underweight**: BMI < 18.5 kg/m²
- **Normal weight**: BMI = 18.5–24.9 kg/m²
- **Overweight**: BMI = 25 −0.29.9 kg/m²
- **Obesity**: ≥ 30 kg/m^2

Statistical Analyses

After data collection, an initial quality control was performed on-site to ensure the completeness, accuracy, and reliability of the data. A second consistency check was conducted for each form to correct any identified inconsistencies, in order to ensure the validity of the results.

Descriptive analyses included the mean and standard deviation for quantitative data with a Gaussian distribution, the median with interquartile range (IQR) for data with a non-Gaussian distribution, and relative (%) and absolute (n) proportions for categorical or qualitative data. Pearson's Chi-square test or Fisher's exact test was used to compare percentages. The Student's *T*-test was used to compare means. For all tests performed, the significance level was set at $p < 0.05$.

Ethical Considerations

This study was conducted in strict accordance with the principles of the declaration of Helsinki. Confidentiality of participants and data integrity were ensured throughout the process, from data collection to analysis. The study results are used solely for the purposes of the stated research objectives. Verbal informed consent was obtained from all participants, and the procedure was reviewed and approved by the Institutional Ethics Committee under number ESP/CE/154/2024.

Results

Epidemiological Data

Frequency of Atopic Dermatitis

A total of 684 children were examined, of whom 259 had atopic dermatitis (37.9%), as shown in Figure 1.

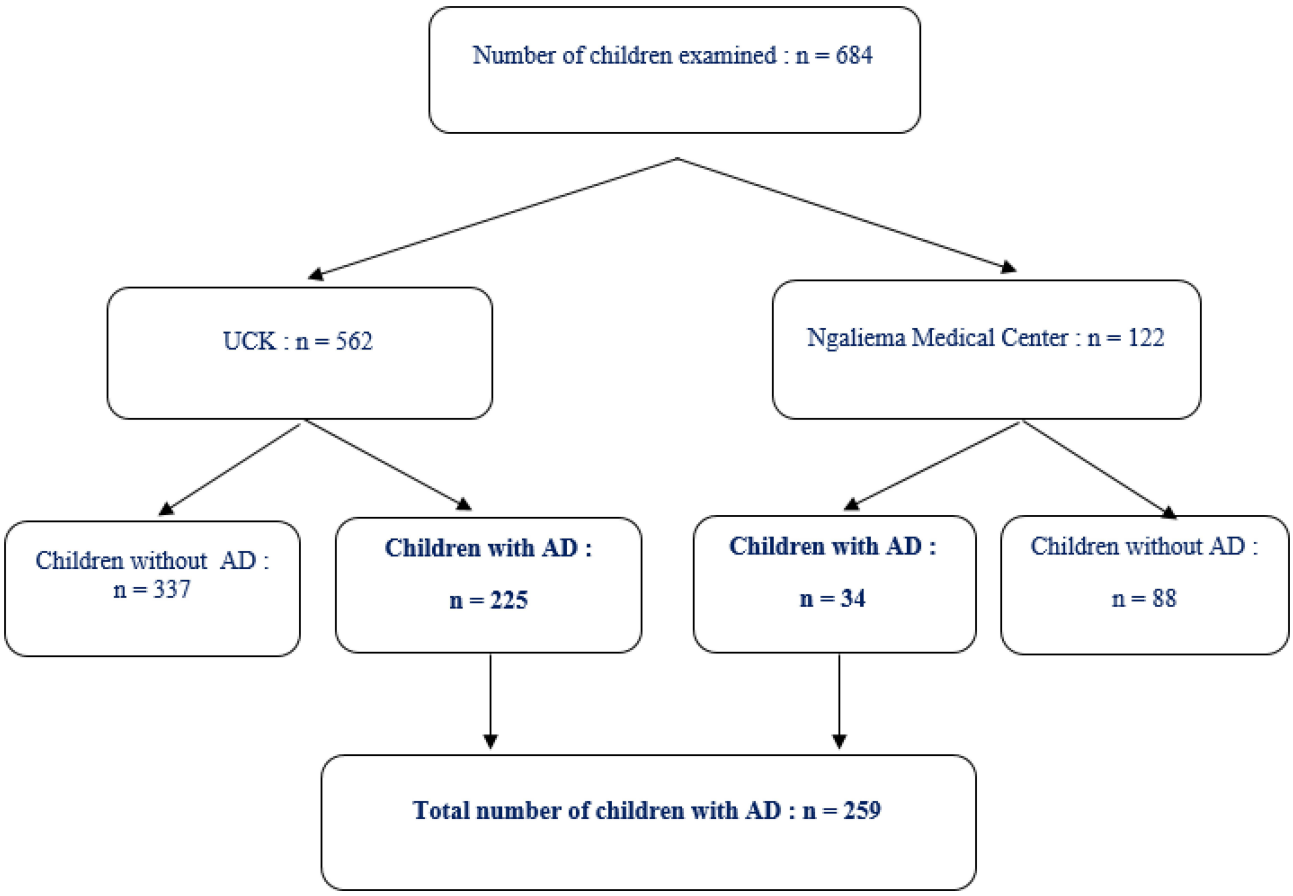

Figure 1 Patient flow diagram.

Table 1 Sociodemographic Characteristics of the Patients

Variable	Frequency (n=259)	Percentage (%)
Age (years)		
0–5	138	53.3
6–12	80	30.9
13–18	41	15.8
Sex		
Female	141	54.4
Male	118	45.6
Sibling Position		
Eldest	92	35.5
Middle	88	34.0
Other (eg, youngest)	79	30.5
Residence Type		
Rural	59	22.8
Urban-rural	200	77.2
Number of Bedrooms		
1	46	17.8
2	66	25.5
3 or more	147	56.8

Sociodemographic Data The Median Age of the Children Was 6 years (Range: 3–11 Years)

Table 1 presents the sociodemographic data of the patients. Most children were aged 0–5 years (53.3%), female (54.4%), the eldest sibling (35.5%), and lived in an urban-rural area (77.2%) in households with three or more bedrooms (56.8%). Additional common characteristics included the presence of carpets (67.6%), curtains (90.7%), and domestic animals (68.3%) in the children's homes.

Clinical Data of Patients

Medical History and Nutritional Status

Tables 2 and 3 present the distribution of patients based on their medical history and nutritional status. Regarding clinical data (Table 2), 57.5% of children had a history of previous dermatosis; 36% had a family history of similar dermatosis; 56.4% had

Table 2 Distribution of Patients by Medical History and Nutritional Status[1]

Variables	Frequency (n=259)	Percentage (%)
Medical History		
Previous Dermatosis		
Yes	149	57.5
No	110	42.5

(*Continued*)

Table 2 (Continued).

Variables	Frequency (n=259)	Percentage (%)
Medical History		
Atopy		
- Similar dermatosis in family	Yes: 93	35.9
	No: 166	64.1
- Allergic rhinitis	Yes: 146	56.4
	No: 113	43.6
- Allergic conjunctivitis	Yes: 77	29.7
	No: 182	70.3
- Asthma	Yes: 151	58.3
	No: 108	41.7
Gestational Term		
Preterm	13	5.0
Full-term	218	84.2
Post-term	19	7.3
Mode of Delivery		
Vaginal Delivery	203	78.4
Cesarean Section	56	21.7
Feeding Type During First 6 Months		
Exclusive breastfeeding	55	21.2
Humanized milk/Family meals	112	43.2
Mixed	92	35.5
Vaccination Status		
Up-to-date	227	87.6
Not up-to-date	32	12.4
Ongoing Treatment		
Topical corticosteroid	86	33.2
Inhaled or oral corticosteroid	30	11.6
None	143	55.2

allergic rhinitis; 70.3% had allergic conjunctivitis; 58.3% had asthma; 84.2% were born at full term; 78.4% were delivered vaginally; 43.2% of children were fed with humanized milk and family meals; 87.6% of children were vaccinated and 33.2% of children were receiving topical corticosteroid treatment. According to Table 3, 67.2% of children used non-pediatric toilet soap; the majority of children (83%) bathed more than once per day; 59.5% of children used pediatric body lotion; 88.4% of children aged 0–5 years had a normal nutritional status and 50.4% of children aged 6–18 years were underweight.

Table 3 Distribution of Patients Based on Medical History and Nutritional Status[2]

Variables	Frequency (n=259)	Percentage (%)
Type of Toilet Soap		
Pediatric	85	32.8
Non-pediatric	174	67.2
Number of Baths/Day		
1 time	44	17.0
More than 1 time	215	83.0
Body Lotion		
Pediatric	154	59.5
Non-pediatric	105	40.5
Nutritional Status		
Children Aged 0–5 Years (n=138)		
Severe malnutrition	12	8.7
Moderate malnutrition	1	0.8
Risk of malnutrition	3	2.2
Normal nutritional status	122	88.4
Children Aged 6–18 Years (n=121)		
Underweight	61	50.4
Normal weight	52	43.0
Overweight	4	3.3
Obesity	4	3.3

Table 4 Correlation Between SCORAD Score and Patient Sex

SCORAD	Total (n,%)	Female (n, %)	Male (n, %)	*p*	OR (95% CI)
Mild (<25)	83 (32%)	42 (29.8%)	41 (34.7%)	0.394	1.2 (0.7–2.1)
Moderate (25–50)	145 (56%)	80 (56.7%)	65 (55.1%)	0.790	0.9 (0.5–1.5)
Severe (>50)	31 (12%)	19 (13.5%)	12 (10.2%)	0.414	0.7 (0.3–1.6)

Distribution of Patients by Sex and Severity of Atopic Dermatitis

Table 4 shows the correlation between the SCORAD score and the sex of the patients. There was no statistically significant difference in the frequency of atopic dermatitis severity by sex ($p > 0.05$ for all three severity levels).

Relationship Between Atopic Dermatitis Severity and Nutritional Status

In Children Aged 0 to 5 Years

According to Table 5, There was no correlation between nutritional status and the severity of atopic dermatitis ($p = 0.985$). Additionally, there was no correlation between sex and malnutrition.

Table 5 Relationship Between Atopic Dermatitis Severity and Nutritional Status in Children Aged 0–5 Years

Nutritional Status	n (%)	Sex (n, %)				SCORAD (n, %)				
		Female	Male	*p*	OR (95% CI)	Mild	Moderate	Sévère	*p*	OR (95% CI)
Severe malnutrition	12 (4.6%)	7 (5%)	5 (4.2%)	0.605	0.2 (0.1–0.6)	5 (6%)	6 (4.1%)	1(3,2)	0.985	0.1(0,01–0,2)
Moderate malnutrition	1 (0.4%)	0	1 (0.8%)			0	1 (0.7%)	0		
Risk of malnutrition	3 (1.2%)	1 (0.7%)	2 (1.7%)			1 (1.2%)	2 (1.4%)	0		
Normal nutritional status	122 (47.1%)	60 (42.6%)	62 (52.5%)			37 (44.6%)	70 (48.3%)	15(48,4)		

Table 6 Relationship Between Atopic Dermatitis Severity and Nutritional Status in Children Aged 6–18 Years

Nutritional Status	n (%)	Sex (n, %)				SCORAD (n, %)				
		Female	Male	*p*	OR (95% CI)	Mild	Moderate	Sévère	*p*	OR (95% CI)
Underweight	61 (23.6%)	36 (25.5%)	25 (21.2%)	0.605	0.2 (0.1–0.3)	23 (27.7%)	32 (22.1%)	6(19,4)	0,985	0,1(0,01–0,2)
Normal weight	52 (20.1%)	32 (22.7%)	20 (16.9%)			15 (18.1%)	29 (20%)	8(25,8)		
Overweight	4 (1.5%)	2 (1.4%)	2 (1.7%)			1 (1.2%)	2 (1.4%)	1(3,2)		
Obesity or hypernutrition	4 (1.5%)	3 (2.1%)	1 (0.8%)			1 (1.2%)	3 (2.1%)	0		

In Children Aged 6–18 Years

Table 6 shows that the severity of atopic dermatitis was not associated with the child's weight (p = 0.985) and sex did not influence the weight of the children.

Discussion

Epidemiological Characteristics

Prevalence of Atopic Dermatitis

The prevalence of atopic dermatitis (AD) among children in our study is 37.9%, which is close to the study conducted in Cameroon[19] by Nkoro and al. (31.2%). In contrast, Dammak and Guillet[20] in France found a lower prevalence (10–25%), as did Taieb[21] in the same country (8.8%). Mathew and al. in Canada[22] and Koudoudpo and al. in Benin[23] reported respective prevalences of 17% and 14%. Our high prevalence could be explained by the poorly adapted westernization of lifestyle.

Sociodemographic Data

Sex

In our study, most children were female (54.4%), which is close to a study conducted by Perfure and al. in sub-Saharan Africa and the Maghreb, where the percentage was 56.4%.[24] Another study conducted in Cameroon by Kouotou and al.[25] showed a significantly higher female predominance at 65.7%. However, Mahfoudh and al.,[26] in their study on severe AD in children in Tunisia, reported that 62.5% of cases were boys, differing from our findings. However, our study included all cases of AD, regardless of severity, and found no statistical relationship with sex.

Age

Children aged 0–5 years constituted the majority in our study (53.3%), similar to a study in Benin,[23] where the 0–5 age group was the most affected. Likewise, Denise[27] in France found a predominance in the 0–6 age group. However, Kouotou and al.[25] in Cameroon, using a different age grouping, found a predominance of children aged 0–10 years. These data are consistent with existing literature.

Birth Order

Firstborn children were the majority (35.5%), possibly because they are often neglected by their parents in favor of their younger siblings. This aspect is not well explored in the literature available to us.

Residential Environment

Most children in our study came from an urban-rural environment (77.2%). A similar observation was made in Lome[28] by Teclessou and al., who found 81.7% of cases in an urban-rural setting. However, Nkoro and al.[19] in Cameroon reported that 73.3% of children lived in urban areas. Our findings may be explained by the potential role of air pollution in rapidly urbanizing and industrializing cities, contributing to the development of allergic diseases.

Other Epidemiological Data

The most frequent sociodemographic characteristics included the presence of carpets (67.6%), curtains (90.7%), and domestic animals in the households surveyed. It is well established that carpets, curtains, and domestic animals can be sources of allergens that exacerbate AD. Studies by Nkoro and al, Koudoukpo and al., and Avigael and al. support these findings.[19,23,29]

Clinical Characteristics

Medical History

Regarding medical history, nearly one-third of the children had a family history of similar dermatoses and/or allergic conjunctivitis. Allergic rhinitis and asthma were observed in 56.4% and 58.3% of cases, respectively. Additionally, 43.2% of children were fed formula milk and family meals, 87.6% were vaccinated, and 33.2% were under dermocorticosteroid therapy. The association of atopy with AD in our study supports findings from the literature.[1,2] Atopy appears to be the common denominator among allergic diseases, such as AD, allergic rhinitis, and allergic conjunctivitis.[2] This observation aligns with the concept of the "atopic march", which suggests that atopic disease can transition from one stage to another or coexist.[2]

Vaccination does not seem to be linked to the clinical expression of AD. No data in the literature available to us establish such a connection. The health policy in the Democratic Republic of the Congo (DRC) recommends universal implementation of the Expanded Program on Immunization (EPI) for all children, which may explain the high vaccination rate in this study.

According to Johnson and al. in the UK,[30] Carmen and al. in Australia,[31] and Ngolo and al. in the DRC,[12] formula milk is included in exclusion diets for AD, being responsible for severe clinical manifestations in 29% of cases. The ongoing use of dermocorticosteroids in 33% of our sample confirms the chronic nature of AD and the need for long-term management.

Many children in our study used pediatric toilet soap (67.2%) and bathed more than once daily (83%). The high frequency of daily baths may exacerbate AD, as our results suggest. This finding is consistent with that of Staumont,[32] who recommends only one bath per day for AD patients. Frequent washing in AD promotes xerosis, a key clinical feature of the condition.

In this study, 56% of children had moderate AD, with nearly equal distribution between sexes (F: 56.7%, M: 55.1%), with no statistical significance ($p > 0.05$). The month of birth did not influence the severity of AD ($p > 0.05$).

There was no correlation between nutritional status and AD severity ($p = 0.985$), although severe malnutrition appeared to be a protective factor (OR 0.1 [0.001–0.2]). Similarly, there was no correlation between sex and malnutrition. AD severity was not associated with weight in children aged 6–18 years ($p = 0.985$), though underweight appeared protective (OR 0.1 [0.01–0.2]). Sex did not influence children's weight.

According to Silverberg and al.[33] and Mathew and al.,[22] AD is associated with a higher BMI, meaning obesity is a risk factor for AD. In Belgium, moderate-to-severe AD has been linked to high BMI.[7,9] Several European authors suggest that weight loss reduces the risk of developing atopic disease.[6,34] However, Zhang and al. report different findings.[7] Though not statistically significant, the observed correlation between AD severity and underweight/malnutrition in children aged 6–18 years and 0–5 years could be explained by a reduced inflammatory response due to lower

adipose tissue. Thus, underweight and malnutrition appear to be protective factors against AD in this study. One hypothesis suggests that hypertrophic adipose tissue produces soluble adipokines involved in inflammation and immunity, stimulating the production of pro-inflammatory cytokines responsible for chronic low-grade inflammation and increased hypersensitivity reactions.[7]

Study Strengths and Limitations

Limitations

Although our study is prospective, the six-month period seems short for a large cohort. Additionally, conducting this study in only two medical facilities in Kinshasa limits the generalizability of our findings to the entire city, land alone the DRC. Furthermore, the absence of certain biological markers of AD, not explored in this study, represents another limitation.

Strengths

To our knowledge, this is the first study in Kinshasa and the DRC specifically focused on the relationship between nutritional status and AD severity in hospitalized children.

Conclusion

This study concludes that AD prevalence is increasing in children, with moderate forms being the most common. Nutritional status in atopic children has no impact on the expression of atopic dermatitis.

Perspectives

Etiological studies of the case control or large-scale prospective study, including relevant biological markers, is needed to confirm or refute these findings and better understand potential correlations between comorbid conditions, such as malnutrition and AD severity in children.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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