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Profile of the Etiological Groups of Child Dermatitis at the University Clinics of Kinshasa - Democratic Republic of the Congo

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Abstract

Context and objectives: Child dermatitis is a frequent reason for consultation in sub-Saharan Africa and in the Democratic Republic of the Congo in particular. The objective of this study is to determine the profile of dermatitis in children according to the etiological approach in the Dermatology Department of the University Clinics of Kinshasa.

Methods: In an analytical and descriptive retrospective study, the data of children with dermatitis, followed in the dermatology department of the University Clinics of Kinshasa were collected between June 1, 2009 and December 31, 2011. The variables studied were epidemiological and clinical (diagnose).

Results: The incidence of child dermatitis in the department of dermatology of the University Clinics of Kinshasa was 40.89% (818/1994). Their median age was 60 months (EIQ 60-65.9) with a female predominance (55.7%, sex ratio of 1.25/1). The 0-2-year age group was predominant (30.6%). Dermatitis in children predominated in the dry season (54%); the most frequent were infectious (40.0%, $p = 0.023$) and immuno-allergic (33.4%, $p = 0.043$), with impetigo (18.7%) and atopic dermatitis (33.3 %) respectively as the main diagnosis.

Conclusion: There is a high prevalence of child dermatitis in Republic Democratic of Congo predominantly the infectious and the immuno-allergic dermatitis. A clean environment and a healthy lifestyle are the key to control their occurrence.

Keywords: Child; Dermatitis; Epidemiology; University Clinics of Kinshasa

Introduction

Pediatric dermatology is a relatively recent sub-specialty and requires studies (research) in the sub-Saharan region in general and in the Democratic Republic of Congo in particular. There is dermatitis specific to the pediatric population, and some clinical portraits, although found in adults, have some peculiarities. Like many diseases, children's dermatitis should be considered as a

real public health problem in developing countries. They constitute nearly 30% of general consultations in dermatology [1-3]. However, they are still epidemiologically and clinically poorly explored in the Democratic Republic of Congo (DRC) [4]. Dermatitis are generally diagnosed following the Wilanist approach, which is based on the type of elementary lesion [5] (an adequate process for a learner in dermatology) and/or on its etiology.

The latter method is easy and regular for the well-trained dermatologist. Each of these methods has its advantages and limitations [5]. Pediatric dermatitis constitutes a set of pathologies

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of the skin and appendages, affecting the child; their etiologies are diverse and include immuno-allergic, metabolic, infectious, and genetic.

The epidemiology of pediatric dermatosis involves various aspects regarding the frequencies related to the variables of interest, which include age, gender, season, socio-economic level, etc. Its context may vary from one continent, one country or even one city to another, depending on the lesional and etiological approaches. Based on our previous article on the diagnostic lesional approach of childhood dermatosis [4], using the same database for the same study site, we thought it wise and complementary to work on the same topic following the diagnostic etiological approach. Authors present diverse frequencies of child dermatosis; 30% in tropical Africa [6], of which 23 - 33% in West Africa [7-9] and 40% in Africa [10].

Aim and Objectives of the Work

Our goal main objective, is to determine the incidence of the dermatosis of the child in the tertiary hospital environment, taking into account the etiological diagnostic approach and some epidemiological data. This is to enable a better follow up by the generalist and specialist, without therapeutic errors often leading to disastrous complications in the long run.

Methods

Study and Framework

Our study was conducted in the Dermatology Department of Kinshasa University Clinics (CUK), a tertiary-level facility located in the District of Mount Amba/Lemba in the Democratic Republic of Congo.

Type and Duration of the Study

This was an analytical and descriptive study, based on the records of children from 0 to 18 years old, admitted and examined in the service during a period of 31 months; from June 1, 2009, to December 31, 2011.

Study Population and Sample

Of a total of 1994 patients received in the Dermatology Department of the CUK, 818 were children. This study includes informed children from 0 to 18 years old received and examined during the study period, and whose medical records contained variables relevant for the study. This was done with the informed consent of the older children and/or that of the parents (or guardians) for the younger children. Patients over the age of 18 years, those who did not give their consent as well as those fitting in the required age interval, but with incomplete medical records (regarding the variables needed) were not included in the study.

Variables Studied

The variables studied were epidemiological (age, sex, month of the year and season at admission) and clinical (diagnoses). The age groups were categorised as follows: 0-2 years (infants), 3-5

years (preschool age), 6-12 years (school age) and 13-18 years (adolescence). The seasons considered were the dry (March, June, July and August) and the rainy (January, February, April, May, September, October, November and December) seasons [11]. The diagnosis was based on solely the clinic for most of the children.

Operational Definitions

Etiological group: A group of dermatosis sharing the same family of pathogens (viruses, bacteria, fungi, parasites; or that have a common pathophysiological process.

Technical Methods and Data Collection Instruments

The information relevant to the study was collected from the registers and consultation forms, which were then recorded on our data collection forms developed for this purpose, containing all of our study variables. A compilation of these data was done at the end to identify, group and analyze all these variables of interest. All analyzes were performed using the SPSS (Statistical package for social sciences, Chicago) software for Windows version 21. Statistical data processing consisted of calculating the means, standard deviation, median and interquartile range for quantitative variables and proportions for qualitative variables. The Chi square test was applied to compare the proportions at the significance level $p < 0.05$.

Ethical Considerations

Only records containing the informed consent of older children or parents (or guardians) for younger children were included in the study. The photos were taken at the time of the clinical examination, face veiled with respect for the confidentiality of the patient and his parents or guardians.

Results

Epidemiological Data

Our study population (818 children out of a total of 1994 patients) accounted for nearly 41% (40.89%); the female sex was predominant at 55.7% with a female/male sex ratio of 1.25. Their median age was 60 months (EIQ 60 - 65.9 months), with extremes ranging from 0 to 218 months. The 0-2-year agegroup was predominant (30.6%). The dermatosis of the child predominated in the dry season (54%), with peaks in February (12.3%), July (11.9%) and March (10.8%). The annual frequency of dermatopediatric consultations ranged between 37 and 40 %. These data are presented with more details in Table I.

Variables	n=818	Percentage
Sex		
Male	362	44,3
Female	456	55,7

Age		
0-2 years	250	30,6
3-5 years	188	23,0
6-12 years	215	26,3
13-18 years	165	20,2
Season		
Dry	442	54,0
Rainy	376	46,0
Month of admission		
January	153	6,5
February	101	12,3
March	88	10,8
April	70	8,6
May	55	6,7
June	55	6,7
July	97	11,9
August	77	9,4
September	68	8,3

October	31	3,8
November	51	6,2
December	72	8,8
Year of admission		
2009	189	23,1
2010	304	37,2
2011	325	39,7

Table I: Epidemiological data.

Clinical Data

According to Table II, the distribution of etiological groups of dermatosis by sex showed that infectious (40.0%) and immuno-allergic (33.4%) dermatoses were the most frequent with predominance in males (44.5%, $p = 0.023$) and female (36.4%, $p = 0.048$), respectively. Tumor dermatosis were more prevalent in female (5.7%, $p = 0.038$). The distribution of the etiological groups of dermatosis according to the age groups in Table III showed that adnexal dermatoses were mainly found in infants (13.6%) and adolescents (19.4%) in a statistically significant way ($p = 0.001$). The distribution of the etiological groups according to the seasons (Table IV) showed that the toxidermia were the most frequently encountered in the dry season in a statistically significant manner ($p = 0.045$).

Type of dermatose	All n=818	Male n=362	Female n=456	P
Infectious dermatosis	327 (40.0)	161 (44.5)	166 (36.4)	0.023
Immuno-allergic dermatosis	273 (33.4)	107 (29.6)	166 (36.4)	0.048
Adnexal dermatosis	81 (9.9)	42 (11.6)	39 (8.6)	0.191
Inflammatory dermatosis	49 (6.0)	20 (5.5)	29 (6.4)	0.697
Tumoral dermatosis	35 (4.3)	9 (2.5)	26 (5.7)	0.038
Genodermatosis	23 (2.8)	7 (1.9)	16 (3.5)	0.244
Toxidermia	13 (1.6)	7 (1.9)	6 (1.3)	0.687
Unclassified dermatosis	10 (1.2)	5 (1.4)	5 (1.1)	0.946
Dyschromic dermatosis	7 (0.9)	4 (1.1)	3 (0.7)	0.817

Table II: Distribution of etiological groups of dermatoses by sex.

Type of dermatosis	0-2 years n=250	3-5 years n=188	6-12 years n=215	13-18 years n=165	P
Immuno-allergic dermatosis	103 (41.2)	60 (31.9)	72 (33.5)	38 (23.0)	0.166
Infectioud dermatosis	81 (32.4)	92 (48.9)	89 (41.4)	65 (39.4)	0.302
Adnexal dermatosis	34 (13.6)	9 (4.8)	6 (2.8)	32 (19.4)	0.001
Inflammatory dermatosis	4 (1.6)	8 (4.3)	22 (10.2)	15 (9.1)	0.067
Genodermatosis	4 (1.6)	7 (3.7)	6 (2.8)	6 (3.6)	0.838
Toxidermia	3 (1.2)	4 (2.1)	3 (1.4)	3 (1.8)	0.934
Dyschromic dermatosis	0 (0.0)	2 (1.1)	3 (1.4)	2 (1.2)	0.998
Tumoral dermatosis	18 (7.2)	5 (2.7)	10 (4.7)	2 (1.2)	0.172
Unclassified dermatosis	3 (1.2)	1 (0.5)	4 (1.9)	2 (1.2)	0.896

Table III: Distribution of etiological groups according to age.

Type of dermatosis	Dry season=442	Rainy season=376	P
Immuno-allergic dermatosis	150 (33.9)	123 (32.7)	0.773
Infectious dermatosis	170 (38.5)	157 (41.8)	0.374
Adnexal dermatosis	36 (8.1)	45 (12.0)	0.081
Inflammatory dermatosis	30 (6.8)	19 (5.1)	0.384
Genodermatosis	15 (3.4)	8 (2.1)	0.363
Toxidermia	11 (2.5)	2 (0.5)	0.045
Dyschromic dermatosis	2 (0.5)	5 (1.3)	0.395
Tumoral dermatosis	24 (5.4)	11 (2.9)	0.111
Unclassified dermatosis	4 (0.9)	6 (1.6)	0.556

Table IV: Distribution of etiological groups according to the seasons.

In terms of frequencies as detailed in Table V, the distribution of the etiological groups of children's dermatoses showed that atopic dermatitis (33.3%) and prurigostrophulus (32.6%) were the most frequent in the group of immuno-allergic dermatoses ; impetigo (18.7%), tinea capitis (16.8%) and scabiosis (16.2%) in the infectious group; sudamina (56.8%) in adnexal; vitiligo (51.0%) in inflammatory; ichthyosis vulgaris (30.4%) in genodermatoses; maculopapular erythema (61.5%) in toxidermias; hypertrophic scars (42.9%) and infantile haemangiomas (40.0%) in tumors.

Varieties of Dermatoses	n	%
Immunoallergic dermatosis	273	33.4
Atopic dermatitis	91	33.3
Prurigostrophulus	89	32.6
Urticaria	28	10.3
Diaper rash in W	24	8.8
Eczematid	23	8.4
Contact derontmatitis	17	6.2

Photodermatosis	1	0.4
Infectious dermatosis	327	40.0
Impetigo	61	18.7
Tinea capitis	55	16.8
Scabiosa	53	16.2
Pityriasis rosea of Gibert	34	10.4
Tinea corporis	26	8.0
Vulgar wart	17	5.2
Seborrheic dermatitis	12	3.7
Pytiriasis versicolor	10	3.1
Larva migrans	9	2.8
Folliculitis	9	2,8
Molluscumcontagesum	8	2,4
Diaper rash in Y	7	2,1

Varicella	6	1,8
Herpes	5	1,5
Onychomycosis	3	0,9
Zona	2	0,6
Anogenitalcondylome	2	0,6
Gonorrhea	2	0,6
Furonculoïdmyiasis	1	0,3
Tungiasis	1	0.3
Measles	1	0.3
Oral condyloma	1	0.3
Meadow	1	0.3
Erysipela	1	0.3
Adnexal dermatosis	81	9.9
Sudamina	46	56.8
Acne vulgaris	31	38.3
Nail incarnated	4	4.9
Dermatoseinflammatoire	49	6.0
Vitiligo	25	51.0
Lichen planus	7	14.3
Erythema multiform	5	10.2
Psoriasis	4	8.2
Granuloma annulare	3	6.1
Pelad	3	6.1
Scleroderma	1	2.0
Erythema nodosum	1	2.0
Génodermatosis	23	2.8
Ichtyosis vulgaris	7	30.4
Keratosis pilairis	4	17.4
Hereditary epidermolysis bullosa	3	13.0
Verruciform epidermodysplasia	2	8.7
Palmoplantar k�ratoderm�e	2	8.7
Neurofibromatosis	2	8.7
Pityriasisrubra pilaris	1	4.3

Mosaicism	1	4.3
Baby collodion	1	4.3
Toxidemia	13	1.6
Maculopapular exanthema	8	61.5
Fixed pigmented erythema	5	38.5
Dyschromic dermatosis	7	0.9
Post inflammatory hyperpigmentation	7	100.0
Tumoral dermatosis	35	4.3
Hypertrophic scar	15	42.9
Infant hemangioma	14	40.0
Warty nevus	3	8.6
Kaposi disease	2	5.7
Botriomycoma	1	2.9
Unclassified dermatosis		
To determine	10	100.0

Table V: Different frequencies of dermatoses by etiological groups.

The distribution of dermatoses by etiological group versus age (Table IV) showed that most immuno-allergic dermatoses were observed at all ages. However, statistically significant values were noted for atopic dermatitis in school-age (50.0%, $p = 0.001$), prurigostraphulus between 0 and 5 years (32.0 - 48.3%, $p = 0.005$), urticaria in adolescence (42.1%, $p < 0.001$), diaper rash in W (22.3%, $p = 0.001$) and contact dermatitis (15.8%, $p = 0.005$), in infants and adolescents, respectively. For infectious dermatosis, impetigo (43.2%) and tinea capitis (33.7%) were respectively reported in the infant and the school-age group ($p < 0.001$), while pityriasis rosea of Gibert (21.5%) and common warts (16.9%) were more common in adolescents, $p < 0.001$. Sudamina and acne vulgaris were the most common adnexal dermatoses, respectively between 0 and 5 years ($p < 0.001$) and 13 to 18 years ($p = 0.002$). The most common inflammatory dermatoses were vitiligo (0-2 years) and lichen planus (6-12 years), $p < 0.05$. Tumor dermatosis with hypertrophic scars and infantile haemangiomas were more frequent in the school-age group (80%) and in infants (72.2%), respectively, and in a statistically significant way ($p < 0.05$).

The most frequent diagnosis of the child's dermatoses according to the etiological approach are shown in Table VII, at the top of which predominated atopic dermatitis, prurigostraphulus and impetigo.

Dermatosis	0-2 years	3-5 years	6-12 years	13-18 years	p
Immuno-allergic dermatosis					
Atopic dermatitis	30 (29.1)	19 (31.7)	36 (50.0)	6 (15.8)	0.001
Prurigostrophulus	33 (32.0)	29 (48.3)	19 (26.4)	8 (21.1)	0.005
Urticaria	1 (1.0)	3 (5.0)	8 (11.1)	16 (42.1)	<0,001
Diaper rash in W	23 (22.3)	1 (1.7)	0 (0.0)	0 (0.0)	0.001
Eczematid	14 (13.6)	4 (6.7)	4 (5.6)	1 (2.6)	0.034
Contact dermatitis	2 (1.9)	4 (6.7)	5 (6.9)	6 (15.8)	0.005
Photodermatitis	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.6)	-
Infectious dermatosis					
Impetigo	35 (43.2)	18 (19.6)	7 (7.9)	1 (1.5)	<0.001
Tinea capitis	3 (3.7)	21 (22.8)	30 (33.7)	1 (1.5)	<0.001
Scabiosa	9 (11.1)	15 (16.3)	20 (22.5)	9 (13.8)	0.181
Pityriasis rosea of Gibert	1 (1.2)	7 (7.6)	12 (13.5)	14 (21.5)	<0.001
Tinea corporis	4 (4.9)	10 (10.9)	8 (9.0)	4 (6.2)	0.402
Vulgar wart	1 (1.2)	4 (4.3)	1 (1.1)	11 (16.9)	<0.001
Seborrheic dermatitis	6 (7.4)	0 (0.0)	1 (1.1)	5 (7.7)	0.068
Pytiriasis versicolor	0 (0,0)	0 (0.0)	0 (0.0)	10 (15.4)	-
Larva migrans	3 (3.7)	5 (5.4)	1 (1.1)	0 (0.0)	0.273
Folliculitis	2 (2.5)	4 (4.3)	2 (2.2)	1 (1.5)	0.801
Molluscumcontagiosum	2 (2.5)	4 (4.3)	2 (2.2)	0 (0.0)	0.717
Diaper rash in Y	6 (7.4)	1 (1.1)	0 (0.0)	0 (0.0)	-
Varicella	3 (3.7)	0 (0.0)	2 (2.2)	1 (1.5)	-
Herpes	1 (1.2)	3 (3.3)	0 (0.0)	1 (1.5)	-
Onychomycosis	0 (0.0)	0 (0.0)	1 (1.1)	2 (3.1)	-
Zona	0 (0.0)	0 (0.0)	0 (0.0)	2 (3.1)	-
Anogenitalcondyloma	2 (2.5)	0 (0.0)	0 (0.0)	0 (0.0)	-
Gonorrhea	0 (0.0)	0 (0.0)	0 (0.0)	2 (3.1)	-
Furunculoidmyiasis	1 (1.2)	0 (0.0)	0 (0.0)	0 (0.0)	-
Tungiasis	1 (1.2)	0 (0.0)	0 (0.0)	0 (0.0)	-
Measles	1 (1.2)	0 (0.0)	0 (0.0)	0 (0.0)	-
Oral condyloma	0 (0.0)	0 (0.0)	1 (1.1)	0 (0.0)	-
Meadow	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.5)	-
Erysipela	0 (0.0)	0 (0.0)	1 (1.1)	0 (0.0)	-
Adnexal dermatosis					
Sudamina	34(100.0)	8 (88.9)	3 (50.0)	1 (3.1)	<0.001

Acne vulgaris	0 (0.0)	0 (0.0)	3 (50.0)	28 (87.5)	0.002
Nail incarnated	0 (0.0)	1 (11.1)	0 (0.0)	3 (9.4)	-
Inflammatory dermatosis					
Vitiligo	4 (100.0)	5 (62.5)	8 (36.4)	8 (53.3)	<0.001
Lichen planus	0 (0.0)	0 (0.0)	6 (27.3)	1 (6.7)	0.001
Erythema multiform	0 (0.0)	0 (0.0)	3 (13.6)	2 (13.3)	-
Psoriasis	0 (0.0)	0 (0.0)	3 (13.6)	1 (6.7)	-
Granuloma annulare	0 (0.0)	3 (37.5)	0 (0.0)	0 (0.0)	-
Pelad	0 (0.0)	0 (0.0)	2 (9.1)	1 (6.7)	-
Scleroderma	0 (0.0)	0 (0.0)	0 (0.0)	1 (6.7)	-
Erythema nodosum	0 (0.0)	0 (0.0)	0 (0.0)	1 (6.7)	-
Genodermatosis					
Ichtyosis vulgaris	0 (0.0)	1 (14.3)	4 (66.7)	2 (33.3)	-
Kératosis pilaris	0 (0.0)	4 (57.1)	0 (0.0)	0 (0.0)	-
Hereditary epidermolysis bullosa	3 (75.0)	0 (0.0)	0 (0.0)	0 (0.0)	-
Verruciform epidermodysplasia	0 (0.0)	1 (14.3)	0 (0.0)	1 (16.7)	-
Neurofibromatosis	0 (0.0)	0 (0.0)	1 (16.7)	1 (16.7)	-
Palmoplantar keratoderma	0 (0.0)	0 (0.0)	0 (0.0)	2 (33.3)	-
Pityriasis rubra pilaris	0 (0.0)	0 (0.0)	1 (16.7)	0 (0.0)	-
Mosaïcism	0 (0.0)	1 (14.3)	0 (0.0)	0 (0.0)	-
Baby collodion	1 (25.0)	0 (0.0)	0 (0.0)	0 (0.0)	-
Toxidermia					
Fixed pigmented erythema	2 (66.7)	1 (25.0)	1 (33.3)	1 (33.3)	-
other toxidermia	1 (33.3)	3 (75.0)	2 (66.7)	2 (66.7)	-
Tumoral dermatosis					
Hypertrophic scar	4 (22.2)	4 (80.0)	6 (60.0)	1 (50.0)	<0.001
Infant hemangiome	13 (72.2)	0 (0.0)	1 (10.0)	0 (0.0)	<0.001
Warty nevus	0 (0.0)	1 (20.0)	2 (20.0)	0 (0.0)	-
Kaposi disease	1 (5.6)	0 (0.0)	1 (10.0)	0 (0.0)	-
Botriomycoma	0 (0.0)	0 (0.0)	0 (0.0)	1 (50.0)	-

Table VI: Distribution of dermatoses by etiological groups versus age,

Dermatoses	n (%)
Atopic dermatitis	(91) 11.1
Prurigostrophulus	(89) 10.9
Impetigo	(61) 7.5
Tinea capitis	(55) 6.7
Scabiosa	(53) 6.5
Sudamina	(53) 5.6
Pityriasis rosea of Gibert	(34) 4.2
Acne vulgaris	(31) 3.8

Urticaria	(28) 3.4
Tinea corporis	(26) 3.2

Table VII: Most frequent diagnoses of children's dermatoses.

Of the 60 dermatoses diagnosed and seasonally aligned, Table VIII found higher frequencies for atopic dermatitis (13.1%) prurigostrophulus (8.8%), tinea capitis (8.1%) and scabiosis (6.6%). Overall, the occurrence of these dermatoses was not related to the season. However, impetigo (11.7%), sudamina (7.7%) and larva migrans (2.1%) were more observed in the rainy season, unlike hypertrophic scars (2.9%) which predominated in the dry season; on both sides, the difference was statistically significant ($p < 0.05$).

Dermatosis	Dry season n=442	Rainy season n=376	P
Atopic dermatitis	58 (13.1)	33 (8.8)	0.066
Prurigostrophulus	39 (8.8)	50 (13.3)	0.051
Impetigo	17 (3.8)	44 (11.7)	<0.001
Tinea capitis	36 (8.1)	19 (5.1)	0.117
Scabiosa	29 (6.6)	24 (6.4)	0.979
Sudamina	17 (3.8)	29 (7.7)	0.023
Pityriasis rosea of Gibert	18 (4.1)	16 (4.3)	0.974
Acne vulgaris	18 (4.1)	13 (3.5)	0.793
Urticaria	17 (3.8)	11 (2.9)	0.606
Tinea corporis	14 (3.2)	12 (3.2)	0.964
Vitiligo	16 (3.6)	9 (2.4)	0.429
Diaper rash in W	9 (2.0)	15 (4.0)	0.138
Eczematid	17 (3.8)	6 (1.6)	0.091
Contact dermatitis	9 (2.0)	8 (2.1)	0.883
Vulgar wart	11 (2.5)	6 (1.6)	0.514
Hypertrophic scar	13 (2.9)	2 (0.5)	0.021
Infant hemangioma	8 (1.8)	6 (1.6)	0.960
Seborrheic dermatitis	4 (0.9)	8 (2.1)	0.256
To determine	4 (0.9)	6 (1.6)	0.556
Pytiriasis versicolor	7 (1.6)	3 (0.8)	0.474
Larva migrans	1 (0.2)	8 (2.1)	0.022
Folliculitis	6 (1.4)	3 (0.8)	0.632
Other toxidermia	7 (1.6)	1 (0.3)	0.132
Molluscumcontagiosum	6 (1.4)	2 (0.5)	0.346

Table VIII: Distribution of the different etiological diagnoses according to the seasons.

Discussion

Epidemiological data

The aim of our study was to determine the incidence of Child Dermatoses (CD) in tertiary hospital according to the etiological approach, and in a complementary way to our previous study, which was based on the lesional diagnostic approach [4]. In this work, our frequency of CD was 40.89%, which is in line with several studies conducted in Yemen 45.1% [12], Iran 43.9% [13] and Egypt 40% [14], unlike the results of Fofana and al (31.51% [7], Mahé and al (32.9% [8], Traore and al (26.1%) [9] and Olusola and al 23.6% [15]. Females predominated, as opposed to some authors who found a predominance of males [7,15], and infants were more numerous (30.6%), followed by adolescents (26.3%).

Our observation is in accordance with that of Semkenke and al in eastern Democratic Republic of Congo (DRC) [10], but diverges from that of Osolula et al.[15], Sardana et al.[17], Tamer et al.[18], Flavia et al.[19], Anand et al.[20] and Shibeshi et al. [21], who observed a predominance of school-age children. The female dominance may be a consequence of demographic realities. On the other hand, our high frequency of CD is probably may result from poor hygiene and socio-economically and sanitary precarious living conditions [22], which are the main characteristics of the people living in the confines of CUK. The high frequency of CD may also be due to the fact that the CUK is the only medical facility in the tertiary level.

The dry season confined the CDs (54%), with high peaks during the months of February (12.3%), July (11.9%) and March (10.8%). We agree with Emine and al, who reported a predominance of CDs in winter [16], but diverge from El Khateeb and al [22] and Kamkimel et al.[23] who find recurrence of these CDs in summer. In our environment, the dry season is characterized by a dry and cold climate, a condition which does not always motivate the respect of hygiene rules, particularly the daily body bath, which favors xerosis of the skin. This abnormal condition of the skin is subject to pruritus and scratching, during which there may be skin rashes that may promote or maintain skin infections.

Clinical Data

In our study, infectious (40%) and immuno-allergic (33.4%) dermatoses were predominantly statistically significant ($p < 0.05$, Table II). Comparable results have been reported by several authors for infectious dermatoses [7,15,20,22-27]. Casanova et al found a predominance of tumor dermatoses [28], unlike immuno-allergic dermatoses, which was observed in eastern DRC [10] and Brazil respectively [19]. For our study, the high frequency of infectious dermatoses, considered as dermatoses of the poor economy [29], could be explained by the promiscuity in which our general population lives, the deficient hygiene, the lack of environmental sanitation, ignorance of the first managers of these children and malnutrition [7,15]. The majority of girls, however, had immuno-allergic dermatoses (36%, $p = 0.048$), with atopic dermatitis being the most representative (33.3%) in both seasons

with no statistically significant difference (Tables IV-V). We are in line with Malian [7], Nigerian [15], Brazilian [19], Indian [20], Russian [30], and Congolese [10] authors for atopic dermatitis as the leading dermatoses of immunoallergic dermatoses, unlike El Khateeb and al [22], Kramkimel and al [23] and Casanova and al [28] who reported respectively a high frequency of contact eczema, urticaria and nonspecific eczema. The high incidence of atopic dermatitis in our study is the result of progressive urbanization and pollution of major cities such as Kinshasa, dry xerosis in the dry period and / or hyperhydration of the skin in the rainy season. This high frequency could also be linked to the fact that most children admitted to a specialized consultation were first treated by non-dermatologists who gave them inappropriate or even irritating treatments for already weakened skin [31,32]. The literature in our possession is rather reveal a predominance of autoimmune dermatoses in the female sex [33]. Our finding can be traced to demographic statistics where girls outnumber boys [34].

The most frequently observed infectious dermatoses (Table VI), impetigo (43.2%), and tinea capitis (33.7%) were most common between 0-2 years and 6-12 years of age ($p < 0.001$). On the other hand, viral dermatoses such as pityriasis rosea of Gibert (21.5%) and common warts (16.9%) were more observed in adolescents ($p < 0.001$). For impetigo, we agree with many authors [16,22,35], unlike Fofana and al. [10] who reported tinea capitis as the most common infectious dermatosis. The recurrence of impetigo in infants is due to infected sudamina, immaturity of the immune system [36] and conditions likely to favor infections as described above.

With regard to tinea capitis during the school-age period, in addition to defective hygiene, interhuman contact, interchangeability of hats, combs and clippers during hair styling could justify this high frequency [16,36-39]. We are in the same vein as Seudjip and al [40] for the pityriasis rosea of Gibert. Efsttratos and al [41] and Tamer and al [18] who found a prevalence of common warts respectively between 6-12 years for some, 3 - 5 years and 12 - 16 years for others. With the different age groups that are close, growth period and hyperactivity of children at this time of their lives, the high frequency of these diseases at these ages can find an explanation.

Tumor dermatoses (Table II) were confined to females (5.7%), with hypertrophic scars leading (42.9%), followed by infantile hemangioma (40%) (Table V), respectively in pre-school age (80%) and infants (Table VI), regardless of the season (Table IV). For Casanova and al. [28], tumor dermatoses were the most common (27.7%) with predominance of infantile hemangioma. The preponderance of hypertrophic scars, which are generally consistent with burns in our study, is a logical consequence of the use of traditional ovens often within the reach of children due to a lack of regular electricity supply in households. Adnexal dermatitis alone was statistically significant ($p = 0.001$) in infants (13.6%) and adolescents (19.4%), Table III, with 100% sudamina and 87.5% vulgar acne respectively. (table IV). We are in the same vein as Tamer et al.[18] for both dermatoses. The tropical climate, hot and

humid in the rainy season in our sub region, the over dressing of children by mothers and high transpiration could corroborate the high frequency of sudamina between 0-2 years [4]. Acne vulgaris goes hand in hand with the hormonal outbreak at the age of puberty generally corresponding to adolescence [5].

On the Seasonal angle (Table IV), toxidermia occurred at all times with high peaks in the dry season. This dry and cold period in Kinshasa is characterized by an upsurge of high and low respiratory diseases [42], often motivating self-medication based on sulfonamides and non steroidal anti-inflammatory drugs, which are known to have side effects [43]. Vitiligo was the most observed inflammatory dermatitis (51%), Table V, especially in infants ($P < 0.001$), Table VI. This contrasts with the results found by Fofana and al. [7] which highlighted a predominance of palmoplantar keratoderma as the first inflammatory dermatitis, as well as Olusola and al [15] for the age group (38% between 6-12 years). Parents' fear of macules evolving from hypochromia to achromia on the skin of their children, usually peri-orificial in areas of microtrauma[44], uncovered or not, could justify the early seek of a specialized medical advice compared to adults who would have them on the genitals.

Our findings for atopic dermatitis and prurigostrophulus are in line with Malian and Beninese studies [7,45]. The high frequency of prurigostrophulus was found in Nigeria, 10.2% [15], unlike Indian values 5.2% [46] and those of Tanzania 5.6% [27]. Our finding could be explained by insect bites on the exposed parts of the body, the wearing of non-covering clothing, the stagnation of water in the uncured gutters of our cities and promiscuity in addition to the hot and humid climate [7,15].

Conclusion

The dermatoses of the child are frequent in our environment as evidenced by our results. The predominance of infectious and immuno-allergic dermatoses, which are controllable, should motivate new vocations in pediatric dermatology and the promotion of good living habits, a healthy life and a clean environment.

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