

Pattern of Childhood Dermatoses at a Teaching Hospital of Saudi Arabia

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Abstract

Objective: To determine the pattern of childhood dermatoses in Eastern province of Saudi Arabia (SA), in the setting of a university-affiliated hospital, and to compare this with other similar surveys conducted in SA.

Methods: This is a retrospective study of pediatric patients attending the outpatient dermatology clinic and dermatology emergency room at King Fahad Hospital of the University, Al-Khobar, SA, over a period of 24 months from January 2004 to January 2006. All new pediatric patients less than 13 years of age were included. The patient's age, sex, nationality and diagnosis were extracted from the medical records and analyzed. Then our data were compared with previous hospital based surveys conducted in SA.

Results: During the study period, a total of 11365 new patients were seen, including 383 pediatric patients. Pediatric consultations represent 3.4% of all dermatology consultation. The three leading causes for consultation were dermatitis and eczema (30.3%), followed by viral infections (12.5%), and pigmentary disorders (8.9%). Among dermatitis, atopic dermatitis was the most predominant condition (50%). Among viral infections, viral wart was the most frequent (70.8%). Comparing our data with a previous hospital survey conducted in the same region showed similar pattern with minor differences. Comparing our findings with other reports from Najran (Southern SA) and Al-Jouf (Northern SA) showed that dermatitis was the most frequent group of diseases in the three regions. It was followed by viral infections in Al-Khobar and Najran, and pyodermas in Al-Jouf. The third most frequent groups were pigmentary disorders in Al-Khobar and Najran, and viral infections in Al-Jouf.

Conclusion: The majority of childhood dermatoses in various regions of SA may be grouped into relatively few diagnostic categories including eczema, infections, and pigmentary disorders.

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Introduction

Pediatric dermatology deals with the diagnosis, treatment and prevention of skin diseases that occur either exclusively or predominantly in infancy, childhood and adolescence. Children cannot be simply considered as ‘small adults’. They really differ from adults in the range and management of their dermatological problems. Some of the skin disorders typically occur in childhood such as lichen nitidus and hemangioma. In addition, many diseases that also occur in adults present differently in younger patients, like atopic dermatitis and scabies.⁽¹⁾

Geographic, racial, genetic, social, cultural, and economic factors are well known determinants of skin diseases.⁽²⁾

Little is known about the pattern of childhood dermatoses in different regions of Saudi Arabia (SA). Therefore, this study was conducted to determine the pattern of childhood dermatoses in Eastern province of SA in the setting of a university-affiliated hospital, to form a basis for planning the future health care, health education, and research activities and to elucidate the difference, if any, from those reported in other regions. To our knowledge, this is the first survey in SA done to elaborate the frequency and pattern of pediatric skin diseases as an entity.

Methods

This is a retrospective study of pediatric patients attending the outpatient dermatology clinic and dermatology emergency room at King Fahad Hospital of the University (KFHU), Al-Khobar, SA, over a period of 24 months from January 2004 to January 2006. KFHU is the main teaching hospital in the Eastern province of SA and the only tertiary health care center accessed by many patients in the region. It serves a population of approximately 3,000,000. Being a teaching hospital, the policy of department is to allow patients an easy access to the outpatient clinic directly without referral. This ensures an input of a wide spectrum of diseases including simple problems more commonly seen in primary health care by general practitioners.

All new pediatric patients less than 13 years of age were included in this study. All patients were evaluated by a consultant. The patient's age, sex, nationality, and diagnosis were extracted from the medical records. The diagnoses were based on standard diagnostic criteria, and when necessary laboratory investigations and skin biopsy.

Dermatoses were classified according to the Tenth Revision of the International Statistical Classification of Diseases (ICD-10).³ The following parameters were studied; sex and age distributions of dermatoses, and distribution of dermatoses according to their percentage of frequency. Then we compared these figures with a previous report from the same region, and with other regional studies. Parametric data were analyzed using chi-square to compare proportions. P-values less than 0.05 were considered significant.

Results

During the study period, a total of 11365 new patients were seen, including 383 pediatric patients. Pediatric consultations represent 3.4% of all dermatology consultation. Among the 383 pediatric patients, 167(44%) were boys and 216 (56%) girls. There was a slight female preponderance (male: female ratio 1:1.5). Age ranges from newborn to 13 years (mean age 8.4 years). They included 360 (94%) Saudi's.

Table 1 shows the frequency and pattern of skin diseases under specific groups. The dermatitis and eczema constituted the largest group (30.3%), followed by viral infections (12.5%), and pigmentary disorders (8.9%). Among dermatitis, atopic dermatitis was the most predominant condition (50%); it represented 15% of pediatric skin disorders. It was followed by contact dermatitis (12.9%), and seborrheic dermatitis (11.2%). Among viral infections, viral wart was the most frequent (70.8%); it represented 8.9% of all the diagnosis. It was followed by molluscum contagiosum (16.7%). Among pigmentary disorders, vitiligo was the most frequent (58.8%), followed by post inflammatory hyperpigmentation (23.5%). Among papulosquamous disorders, pityriasis rosea was the most frequent (25.8%), followed by pityriasis alba, and psoriasis (22.6% each).

Gender disparity was evident only in post inflammatory hyperpigmentation. More males were seen, $P = 0.0065$ (Table 2).

As Table 3 shows, atopic dermatitis was common in all age groups (mean age 5.5 years). Seborrheic dermatitis was restricted to infants. Moreover, candidiasis was restricted to the first 2 years of life. Contact dermatitis was more often seen in older children in the age range 8 - 13 years (mean age 10.7 years). Alopecia was more often seen in the age range 6 - 11 years. Dermatophytes, viral infections and pigmentary disorders were more often seen in school children (7-13 years). Acne vulgaris was predominantly a disease of older children (11-13 years).

The frequency and pattern of common pediatric skin diseases were compared with a previous hospital survey in the same region and with reports from other regions of SA (Table 4). The previous survey in Al-khobar was conducted by Alakloby from August 2002 to July 2003.⁽⁴⁾ The other hospital based reports from other regions of SA, were from Najran (Southern SA) and Al-Jouf (Northern SA).^(5,6) It is worth to know that the data we gained from Al-Jouf survey was limited to the common disease groups found there, which represented 74% of all diagnoses in children in that study. There have been minor changes in the pattern of skin diseases in Eastern province of SA, since the study by Alakloby. Atopic dermatitis, the most common disorder in both surveys, was seen more often in Alakloby survey (20% vs. 15.1%). The dermatitis group was seen more often too (44.3% vs. 30.3%) and it constituted the most frequent group. It was followed by viral infections (14.7%) and pigmentary disorders (7.7%). Pyodermas also showed a higher frequency in the previous survey (5% vs. 2.1%), whereas psoriasis was seen more often than in the past, occurring in 1.8% of patients compared with 0.7% previously.

On comparing our findings with those from Najran and Al-Jouf, we found that dermatitis was the most frequent group of diseases in Al-Khobar, Najran, and Al-Jouf (30.3%, 34.4%, and 26%) respectively. An analysis of the different causes of eczema showed that atopic dermatitis was the most common form of eczema and the most common skin disease in the three regions. It was followed by viral infections in Al-Khobar (12.5%) and Najran (12.6%), and pyodermas (12%) in Al-Jouf (from the limited data we have). The third most frequent groups were pigmentary disorders in Al-Khobar (8.9%) and Najran (9.6%), and viral infections in Al-Jouf (9%). Viral wart and papulosquamous disorders were more frequent in Al-Khobar compared to Al-Jouf (8.9% and 8.1%) vs. (2.5% and 4%) respectively. Pyodermas were less frequent in Al-Khobar

compared to Najran and Al-Jouf (2.1% vs. 6.3% and 12%) respectively. Urticaria was less frequent in Al-Khobar compared to Najran (2.3% vs. 5.3%). But acne was more frequent in Al-Khobar compared to Najran (3.1% vs. 0.9%).

Discussion

The current study is the first to describe the pattern of childhood dermatoses in SA. We have performed our survey at KFHU in Al-Khobar, SA. Al-Khobar is a commercial center and a vibrant seaport, located on the Persian Gulf coast, in the Eastern province of SA. It is the industrial region of SA with many petroleum refineries. It has a very humid weather that is hot during summer.

In the literature there are few studies on the pattern of skin diseases in SA. Some of them did not specify the pattern or frequency of skin diseases according to different age groups.^(7,8) Others specified the age difference in some common dermatoses only, like the surveys done in Al-Jouf, Asir and Hail regions.^(6,9,10) Others determined the pattern of skin diseases of specific group of children like, female students in primary and secondary school in Eastern SA and male school children in Asir region.^(11,12) We have found that only two surveys showed adequate data on diseases distribution among various age groups. They are the surveys done in Al-Khobar (by Alakloby) and Najran.^(4, 5) We have calculated the diseases frequencies then we determined their pattern from the given data in the tables.

We found that eczema was the most frequent diagnosis in Al-Khobar (in the present and the previous survey) and in the other regional studies, from Najran and Al-Jouf. An analysis of the different causes of eczema showed that atopic dermatitis was the most common form of eczema and the most common skin disease. It was evident in all age groups. This is probably a result of quick urbanization and industrialization which invades the whole of SA, and the corresponding exposure to pollutants, irritants, and other external allergens. Along with the genetic predisposition that is highlighted by the frequent consanguineous marriages in our society.⁽¹³⁾ It has an equal sex predisposition. The frequency of atopic dermatitis in Najran was higher than Al-khobar, whether this is related to less humid climate, more closed community with more frequent consanguineous marriages in Najran, or other factors needs to be studied further. Contact dermatitis was less frequent than atopic dermatitis. It was more often seen in older

children in the age range 8 - 13 years. This could be explained by the fact that allergen exposure is less frequent and the immune system is not yet well developed.

The second most frequent group of diseases was viral infections. This could be seen in our survey, Alakloby survey (Al-Khobar) and Najran. It was more frequent in school children, which could be related to frequent close contact among them and an increase in outdoor and sports activities in this age group. It showed an equal sex predisposition. The limited data we have from Al-Jouf showed that the second most common disease group was pyodermas. The low frequency of bacterial and fungal infections in Al-Khobar compared to Najran and Al-Jouf may reflect the socioeconomic differences between Saudi regions as Najran and Al-Jouf are much less urbanized and industrialized. Again, leishmaniasis in the eastern province of SA is endemic and expected to be higher in occurrence. But because of the presence of a specialized centre of leishmaniasis in Al-Hassa, this might have led to underestimation.

The third most common group of diseases was pigmentary disorders in Al-Khobar (from our survey and Alakloby survey) and Najran. It was more often seen in school children.

Comparing our data with the frequencies calculated from Alakloby survey showed no major pattern changes. This may be attributed to the short time interval between the two. Moreover, comparing our data with the frequencies calculated from Najran and Al-Jouf surveys also showed minor differences. Our data were also not far from those found in other countries. In Kuwait, Atopic dermatitis was the most frequent dermatitis (31.1%) followed by viral warts (13.1%) and alopecia areata (6.7%).⁽¹⁴⁾ In Switzerland, atopic dermatitis was the most frequent dermatitis (25.9%) followed by pigmented nevi (9.1%) and warts (5%).⁽¹⁵⁾ In Hong Kong, the three leading causes of referral were eczema (33%), nevi (20%), and viral warts (6%).⁽¹⁶⁾ On the contrary, in rural Ethiopia, infections and infestations predominated.⁽¹⁷⁾

Cutaneous complains contribute about one-third of all consultations in pediatric office.⁽¹⁸⁾ This reflects the obvious need for dermatologic education of pediatricians. Therefore it seems necessary to ensure that the training of pediatric dermatologists and pediatricians focus on accurate recognition, diagnosis, and management of these common skin diseases. The pattern of skin lesions observed in a study of a pediatric clinic differed

substantially from those reported from pediatric dermatology clinics. As might be expected, the dermatology subspecialty clinic had a higher frequency of visits by children with chronic and unusual skin disorders, where as many common entities (such as diaper rash or miliaria) were rarely encountered.¹⁵ Furthermore, our survey was hospital based retrospective study with known limitations. We believe that the pattern observed represents a rough estimate of the pattern of pediatric skin diseases in dermatology clinics in Eastern SA.

In conclusion, we have observed that the majority of childhood skin diseases in SA may be grouped into relatively few diagnostic categories including eczema, infections and pigmentary disorders. Community based studies need to be conducted to confirm and explore these findings, to give basis for future health plans.

TABLE 1: Frequency and Pattern of Skin Diseases under Specific Groups

Disease Group	Frequency	% Group	% Total
<u>Dermatitis and Eczema</u>	116	100	30.3
Atopic dermatitis	58	50	15.1
Contact dermatitis	15	12.9	3.9
Seborrheic dermatitis	13	11.2	3.4
Others	30	25.9	7.8
<u>Infections of the skin and subcutaneous tissue</u>	83	100	21.7
Viral infections	48	100	12.5
Viral wart	34	70.8	8.9
Molluscum contagiosum	8	16.7	2.1
Herpes zoster	4	8.3	1
Chicken pox	1	2.1	0.3
Herpes simplex	1	2.1	0.3
Fungal infections	22	100	5.7
Dermatophytes	10	45.5	2.6
Pityriasis versicolor	4	18.2	1
Candidiasis	8	36.4	2.1
Pyodermas	8	100	2.1
Impetigo	4	50	1
Folliculitis	4	50	1
Parasitic infections	5	100	1.3
Scabies	4	80	1
Pediculosis capitis	1	20	0.3
<u>Papulosquamous disorders</u>	31	100	8.1
Pityriasis rosea	8	25.8	2.1
Psoriasis	7	22.6	1.8
Pityriasis alba	7	22.6	1.8
Lichen planus	5	16.1	1.3
Lichen nitidus	3	9.7	0.8
Lichen Striatus	1	3.2	0.3
<u>Disorders of skin appendages</u>	42	100	11
Alopecia's	28	66.7	7.3
Trichotillomania	2	4.8	0.52
Acne	12	28.6	3.1
<u>Urticaria and erythema</u>	9	100	2.3
Urticaria	9	100	2.3
<u>Other disorders of the skin and subcutaneous tissue</u>	102	100	26.6
Pigmentary disorders	34	100	8.9
Vitiligo	20	58.8	5.2
Post inflammatory hypopigmentation	8	23.5	2.1
Post inflammatory hyperpigmentation	6	17.6	1.6
Miscellaneous^a	68	100	17.8

^a Miscellaneous diseases refer to those unclassified conditions that constituted less than 1% of all cases. Examples include discoid lupus erythematosus, lymphoma, ichthyosis, hereditary epidermolysis bullosa, epidermolysis bullosa acquisita, pyogenic granuloma, hemangioma, neurofibromatosis, tuberous sclerosis, xeroderma pigmentosa, and insect bite.

Table 2: Sex Distribution of Skin Diseases

Disease	Gender ^a (male/female)	Frequency	P value
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Atopic dermatitis	23/35	58	0.606919
Contact dermatitis	7/8	15	0.982849
Seborrheic dermatitis	6/7	13	0.923655
Other dermatitis	14/16	30	0.872322
Viral warts	14/20	34	0.906251
Molluscum contagiosum	2/6	8	0.242286
Herpes zoster	1/3	4	0.413343
Chicken pox	0/1	1	0.563968
Herpes simplex	0/1	1	0.563968
Dermatophytes	6/4	10	0.229793
Pityriasis versicolor	3/1	4	0.221988
Candidiasis	5/3	8	0.232075
Impetigo	1/3	4	0.413343
Folliculitis	2/2	4	0.586656
Scabies	1/3	4	0.413343
Pediculosis capitis	0/1	1	0.563968
Pityriasis rosea	5/3	8	0.232075
Psoriasis	3/4	7	0.6387205
Pityriasis alba	3/4	7	0.6387205
Lichen planus	2/3	5	0.61925
Lichen nitidus	1/2	3	0.5956772
Lichen Striatus	0/1	1	0.563968
Alopecia's	10/18	28	0.498759
Trichotillomania	0/2	2	0.3174165
Acne	5/7	12	0.874226
Urticaria	6/3	9	0.1422182
Vitiligo	9/11	20	0.9186069
Post inflammatory hypopigmentation	5/3	8	0.232075
Post inflammatory hyperpigmentation	6/0	6	0.0065276
Miscellaneous	27/41	68	0.5620585

Table 3: Age Distribution of Skin Diseases.

Disease	Frequency	Median	Mean	SD
Atopic dermatitis	58	5 Y	5.54741	4.24479
Contact dermatitis	15	11 Y	10.66667	2.21108
Seborrheic dermatitis	13	0.167 Y (= 2M)	0.23646	0.1414
Other dermatitis	30	10.5Y	9.86667	2.56558
Viral warts	34	10Y	9.94118	2.41248
Molluscum contagiosum	8	8.5Y	7.4375	3.45902
Herpes zoster	4	11Y	10.25	2.68095
Chicken pox	1	6 Y	6	0
Herpes simplex	1	5 Y	5	0
Dermatophytes	10	9 Y	8.9	1.97231
Pityriasis versicolor	4	11.5Y	11.25	1.78536
Candidiasis	8	0.67 Y(= 8M)	1.08213	0.93986
Impetigo	4	2.5Y	3.25	1.63936
Folliculitis	4	10.5Y	10.25	0.82916
Scabies	4	6.5Y	6.25	3.03109
Pediculosis capitis	1	8 Y	8	0
Pityriasis rosea	8	10.5Y	10.625	1.21835
Psoriasis	7	12Y	11.28571	1.97949
Pityriasis alba	7	9 Y	9.28571	1.27775
Lichen planus	5	12Y	11.4	0.8
Lichen nitidus	3	10 Y	9	1.41421
Lichen Striatus	1	3 Y	3	0
Alopecia's	28	8 Y	8.5	2.71898
Trichotillomania	2	12Y	12	1
Acne	12	11.5Y	11.5	1.32288
Urticaria	9	9Y	9	2.4037
Vitiligo	20	10 Y	9.8	2.54165
Post inflammatory hypopigmentation	8	6.5Y	7.375	2.78107
Post inflammatory hyperpigmentation	6	11 Y	11.33333	0.94281
Miscellaneous	68	10 Y	9.39824	3.0928
Total	383	10 Y	8.40486	3.83318

Table 4: Frequency and Pattern of common Pediatric skin diseases in this survey compared with a previous hospital survey and with reports from other regions of Saudi Arabia.

Disease	Al-Khobar⁴ 2002-2003 (n=402) (%)	Al-Khobar This study 2004-2006 (n=383) (%)	Najran⁵ 2000-2001 (n=302) (%)	Al-Jouf⁶ 1995-1996 (n=925) (%)
Dermatitis	44.3	30.3	46.7	42
Atopic dermatitis	20	15.1	34.4	26
Contact dermatitis	5	3.9	3.6	4
Viral infections	14.7	12.5	12.6	9
Viral wart	11.9	8.9	NS	2.5
Fungal infections	5.7	5.7	7.3	7
Pyodermas	5	2.1	6.3	12
Papulosquamous disorders	6.2	8.1	6	4
Psoriasis	0.7	1.8	NS	2.9
Lichen planus	2	1.3	NS	0
Pityriasis rosea	3.2	2.1	NS	1
Alopecia's	6.5	7.3	5.3	NS
Acne	3.7	3.1	0.9	NS
Urticaria	3	2.3	5.3	NS
Pigmentary disorders	7.7	8.9	9.6	NS

NS = Not specified

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