Prevalence of skin diseases among infants and children in Al Sharqia Governorate, Egypt.

* Fawzia Farag Mostafa, Aida Abdel Hamid Hassan*, Mohamed Ibrahim Soliman, Amani Nassar, Randa Hassan Deabes

* Dermatology & Venereology and Industrial Medicine & Occupational Health Departments, Faculty of Medicine, Zagazig University, Egypt

Egyptian Dermatology Online Journal 8(1): 4

Corresponding Author: Amani Nassar
E-mail: amaninassar2005@yahoo.com

Submitted: May 5, 2011
Accepted: May 30, 2011

Abstract

Background Skin diseases are common in children. Some are transitory and require only single or few visits to the dermatologist, where others are chronic and recurrent. Thus require more frequent follow-up.

Objectives To determine the prevalence of different dermatologic diseases in infant and children in Sharkia Governorate EGYPT.

Subjects and methods A cross-sectional study was carried out on 1860 patients of both sexes with different skin diseases chosen by random sample. Aged from one month to twelve years from Dermatology and Pediatric Out-patient Clinics of Zagazig University Hospitals.

Results The group with bacterial skin infection had the highest prevalence rate (23.4%) of which impetigo (22%) was the commonest. Parasitic infestations group had a rate of (20.9%) with pediculosis capitis forming the majority (17.5%). Superficial fungal infections were (16.3%), followed by eczema/dermatitis group (12.7%), then viral infections (11.2%), urticaria (6.1%), sweat gland disorders (4.8%), papulosquamous disorders (1.5%), pigmentary disorders (1.1%), alopecia areata (0.6%), genodermatoses (0.4%). Other skin disorders were recorded (0.8%).

Conclusions bacterial infections were a major problem particularly among school age group.
Introduction

The epidemiologic statistics of skin diseases provide us with information about prevalence, age, and sex differences in affected groups, and their regional distribution. It also offers the most useful way of evaluating causes of skin diseases in human populations [1].

On the other hand, widespread population studies are important in planning of efficient health services. Studies of pediatric population, which constitutes the cornerstone of the community, can play an important role in determining the policies of protective medicine and public health [2].

The aim of this work is to give an overview of the statistical study of different dermatologic diseases in infant and children in Sharkia Governorate according to age, gender, etiology and possible variation according to season.

Patients and Methods

A cross-sectional study was carried out at Dermatology and Pediatric out-patient clinics of Zagazig University Hospitals over a one year from January to the end of December 2010.

It was conducted on 1860 patients of both sexes with different skin diseases chosen by random sample. Aged from one month to twelve years.

Data collection: For every case, complete history was taken with particular emphasis on age, sex and previous history of a similar skin condition.

The patients were divided into 3 age groups:

- Infants group: 1 month to 2 years,
- Preschool group: 2 years to 6 years,
- School age group: 6 years to 12 years.

The studied cases were further divided according to etiology, modified from [3] into the following groups:

- Bacterial skin infections,
- Parasitic infestations, Fungal infections.
- Viral infections.
- Dermatitis / eczema,
- Sweat gland disorder,
- Urticaria.
- Papulosquamous disorders,
- Hair disorders,
- Pigmentary disorders,
- Genodermatoses.
- Others skin disorders

http://www.edoj.org.eg
**Statistical analysis:**

Data were coded, checked, entered, and analyzed by using SPSS version 15. Data were represented as number and percentage. Chi-squad (X2) or Fisher exact tests were used when appropriate, 
P value < 0.05 was considered statistically significant., P value < 0.001 means highly significant.

**Results**

It has been found that out of 1860 patients there were 759 (40.8%) males and 1101 (59.2%) females. The incidence of skin diseases as regard age groups was as follows; 279 cases (15%) in infant group, 687 cases (36.9%) in preschool age group and 894 cases (48.1%) in school age group. table (1).

<table>
<thead>
<tr>
<th>Age group</th>
<th>No.</th>
<th>Males</th>
<th>Females</th>
<th>X²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>1 Month – 2 years</td>
<td>279</td>
<td>134</td>
<td>48.0</td>
<td>145</td>
<td>52.0</td>
</tr>
<tr>
<td>2 years – 6 years</td>
<td>687</td>
<td>294</td>
<td>42.8</td>
<td>393</td>
<td>57.2</td>
</tr>
<tr>
<td>6 years – 12 years</td>
<td>894</td>
<td>331</td>
<td>37.0</td>
<td>563</td>
<td>63.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1860</td>
<td>759</td>
<td>40.8</td>
<td>1101</td>
<td>59.2</td>
</tr>
</tbody>
</table>

Table (1): Age and sex distribution of all studied cases

Regarding the etiologic factors for the different skin diseases table (2).
Skin diseases | No. of cases | %
--- | --- | ---
Bacterial infections | 436 | 23.4
Parasitic infestations | 388 | 20.9
Fungal infections | 304 | 16.3
Dermatitis /eczema | 237 | 12.7
Viral infections | 209 | 11.2
Urticaria | 114 | 6.1
Sweat gland disorders | 90 | 4.8
Papulo-squamous disorders | 28 | 1.5
Pigmentary disorders | 20 | 1.1
Hair disorders | 12 | 0.6
Genodermatoses | 8 | 0.4
Other skin disorders | 14 | 0.8
**Total** | **1860** | **100**

**Table (2):** Distribution of studied cases according to the aetiology.

Bacterial infections were the most common diseases 436 cases (23.4%). Impetigo present in 410 cases (94%) of all cases with bacterial infections **table (3).**

<table>
<thead>
<tr>
<th>Skin diseases</th>
<th>No.</th>
<th>%</th>
<th>Sex</th>
<th>X²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Impetigo</td>
<td>410 (94%)</td>
<td>183</td>
<td>44.6</td>
<td>227</td>
<td>55.4</td>
</tr>
<tr>
<td>Other pyodermas</td>
<td>26 (6%)</td>
<td>12</td>
<td>46.2</td>
<td>14</td>
<td>53.8</td>
</tr>
<tr>
<td>Total</td>
<td>436(100%)</td>
<td>195</td>
<td>44.7</td>
<td>241</td>
<td>55.3</td>
</tr>
</tbody>
</table>

**Table (3):** Distribution of bacterial skin diseases in relation to sex

http://www.edoj.org.eg
Parasitic infestations was next, 388 cases (20.9%). pediculosis capitis was the most frequently observed parasitic disease 325 cases (83.8%). Scabies was 63 cases(16.2%).

<table>
<thead>
<tr>
<th>Skin diseases</th>
<th>No. of cases</th>
<th>Sex</th>
<th>X²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pediculosis capitis</td>
<td>325(83.8%)</td>
<td>5</td>
<td>320</td>
<td>98.5</td>
</tr>
<tr>
<td>Scabies</td>
<td>63 (16.2%)</td>
<td>33</td>
<td>14</td>
<td>47.6</td>
</tr>
<tr>
<td></td>
<td><strong>154.4 &lt; 0.001</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>388</td>
<td>38</td>
<td>241</td>
<td>90.2</td>
</tr>
</tbody>
</table>

Table (4): Distribution of parasitic skin diseases in relation to sex

The third group was superficial fungal infections, 304 cases (16.3%). The commonest of which was tinea capitis. 239 cases representing (78.6%) of all cases with fungal infections. table (5).

<table>
<thead>
<tr>
<th>Skin diseases</th>
<th>No. of cases</th>
<th>Sex</th>
<th>X²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T. Capitis</td>
<td>239 (78.6%)</td>
<td>129</td>
<td>110</td>
<td>46.0</td>
</tr>
<tr>
<td>T. Corporis</td>
<td>49 (16.1%)</td>
<td>20</td>
<td>29</td>
<td>59.2</td>
</tr>
<tr>
<td>Candidiasis</td>
<td>16 (5.3%)</td>
<td>13</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Total</td>
<td>304</td>
<td>162</td>
<td>142</td>
<td>46.7</td>
</tr>
</tbody>
</table>

Table (5): Distribution of fungal skin infections in relation to sex
Eczematous skin diseases were the fourth group accounted for 237 cases (12.7%). The commonest was pityriasis alba that was present in 114 cases (48.1%) out of all cases with eczematous disorders. **table (6)**.

<table>
<thead>
<tr>
<th>Skin diseases</th>
<th>No. of cases</th>
<th>Sex</th>
<th>X²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Males</td>
<td>%</td>
<td>Females</td>
</tr>
<tr>
<td>Atopic dermatitis</td>
<td>55 (23.2%)</td>
<td>29</td>
<td>52.7</td>
<td>26</td>
</tr>
<tr>
<td>Pityriasis alba</td>
<td>114 (48.1%)</td>
<td>66</td>
<td>57.9</td>
<td>48</td>
</tr>
<tr>
<td>Contact dermatitis</td>
<td>40 (16.9%)</td>
<td>15</td>
<td>37.5</td>
<td>25</td>
</tr>
<tr>
<td>Diaper dermatitis</td>
<td>23 (9.7%)</td>
<td>10</td>
<td>43.5</td>
<td>13</td>
</tr>
<tr>
<td>Seborrheic dermatitis</td>
<td>5 (2.1%)</td>
<td>4</td>
<td>80</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>237</strong></td>
<td><strong>124</strong></td>
<td><strong>52.3</strong></td>
<td><strong>113</strong></td>
</tr>
</tbody>
</table>

**Table (6):** Distribution of dermatitis according to sex

The fifth group was that of viral infections, 209 cases (11.2%). The commonest of which was chicken pox responsible for 149 cases (71.3%) of all cases with viral infections **table (7)**.
Table (7): Distribution of viral skin diseases according to sex

Urticaria was the sixth group, 114 cases (6.1%). The commonest of which was papular urticaria, representing (89.5%) of all cases with urticaria.

Sweat gland disorders (miliaria) were diagnosed in 90 cases (4.8%).

Papulosquamous disorders occurred in 28 cases (1.5%). Pityriasis rosea 17 cases, psoriasis 7 cases and pityriasis rubra pilaris (PRP) 4 cases

Pigmentary disorders were 20 cases (1.1%), the commonest was post inflammatory hypo or hyperpigmentation. Alopecia areata was seen in 12 cases (0.6%).

Genodermatoses group included 8 cases (0.4%). Three cases were ichthyosis, 2 cases were tuberous sclerosis and the other 3 cases were pachyonychia congenita

Other skin disorders group included 14 cases (0.8%). There were 4 cases of nevi and 2 cases of erythrodern, hemangioma, pyogenic granuloma, and epidermolysis bullosa. A single case was seen in chronic bullous disease of childhood and pyoderma gangrenosum.
As regard to season, the highest incidence was showed in summer (30.1%), compared to other seasons.

**Discussion**

Many factors determine the results of epidemiologic studies on skin diseases. Genetic background, geographic area, climate, season, socioeconomic status, living conditions and medical resources are the most important factors [4,5].

According to our finding in relation to sex, female predominance was observed. The male to female ratio was (1: 1.4). This was in agreement with a study from Turkey [2] in which male to female ratio was (1:1.1) while in a study from India [5] male predominance was observed, male to female ratio was (1.07: 1).

As regard to age, the main bulk of cases were observed during school age group (48.1%) while the lowest number of cases were observed in infantile group (15%) and this can attributed to the propensity of parents to consult pediatricians for problems in their infants.

Our results were similar to studies from Pakistan [6] and Kuwait [7] where the main bulk of cases were observed in the school age group (46.4%) and (43.4%) respectively.

On the other hand, our study revealed different results from a survey done previously in our clinic 20 years ago, the main bulk of cases were observed during the preschool age group (39.6%) [8].

As regard to season, most cases were observed in summer months (30.11%). This was in agreement with [8] in which cases showed high prevalence in summer (35.7%) while in Turkey [2] cases showed high prevalence in winter (30%).

When the results were evaluated according to etiology, infections and infestations were the most frequent presentation in our cases (70.9%). Similar results (79.1%) were obtained by Amer et al [8]. The higher frequency of infections and infestations in our study could be due to large rural population attending our hospital with low socioeconomic strata and poor hygiene.

In other parts of the world, infections and infestations also were the most prevalent. They recorded 47.1% in New Delhi [5], 60% in Pakistan [6] and 54.5% in south India [9]. But studies from Switzerland [10] Turkey [2] and Kuwait [7] revealed differences, where noninfectious diseases are more frequent, representing (79.9%), (78.6%) and (68.8%) respectively.

The most frequent and prevalent infectious skin diseases in this study were bacterial infections (23.4%). Similar results were obtained by [8,5], bacterial infections constituted (34.7%) and (27.3%) of their cases respectively. The present study revealed different results from, Kuwait [7] in which viral infections were the most frequently (18.2%) and Pakistan [6] where fungal infection were the most common (20.6%).

http://www.edoj.org.eg
Among bacterial infections impetigo was the most prevalent and it was the commonest cause of skin disorders in the present study, representing (22%) of all cases. This was in agreement with [8] where impetigo was the most prevalent (31.7%). On the other hand, low frequency of impetigo was observed in Kuwait [7] (3%) and Turkey [2] (4.1%).

In summer months, impetigo had the highest frequency. It recorded 48.8% in the present study, 43.8% [8] and 35.7% [2] in other studies.

The highest frequency of bacterial infections in our results can explained by the hot humid climate, overcrowding, low socioeconomic status and widespread use of topical antibiotics leading to resistant strain.

Parasitic skin diseases were second in frequency after bacterial infections in our study (20.8%). This was similar to other studies from, Pakistan [6] (17.5%) and South India [9] (16.7%).

Pediculosis capitis was the most frequent parasitic disease in the present study, representing 17.5% of all studied cases. Similar rates were observed in previous Egyptian studies that reported 19.7%, 14.7%, 21.8% and 16% respectively [3,11,12,13]. While higher infestations rates were reported in other studies 32.2% [14] and 48.2% [15].

In other countries, high rates of infestations with head lice were reported 32.4% in Palestine [16]. On the other hand, the rate is much lower in Iran [5] 3.8% Turkey [2] 0.2% and India [5] 0.6%.

The high rate of pediculosis capitis in our study could be due to poor hygiene, most cases from rural areas and overcrowding. Pediculosis capitis cases are usually school-centered where crowded classrooms are considered a factor facilitating transmission of the disease.

Infestations with pediculosis capitis was more common in females than males with a highly significant difference p<0.001 in our study. This was in agreement with [17,13] they reported a highly significant relation between head lice and hair length p<0.0001.

The other parasite disease in this study was scabies, representing 3.4% of all cases and this result was relatively close to the values reported by [7,3,10] where it was 3%, 1.72% and 1.7% respectively. On the other hand, high prevalence rates of scabies were recorded by [8,18,5]. They were 23.9%, 21.0% and 10.16% respectively.

The low prevalence of scabies had no clear explanation. Abdel-Hafez et al [3] stated that the prevalence of scabies shows a cyclic pattern with a periodicity of 10-30 years.

Fungal infections of the skin revealed high frequency in the present study 16.3% of all cases. High frequency of fungal infections were reported to be 20.6% and 15.8% respectively [6,19].
Low frequency of fungal infections was reported to be 3.28% in Kuwait [7], 3% in Turkey [2], 2.07% in Switzerland [10] and 4.65% in India [5]. The reason for such differences between various reports may be due to the variation in fungal species prevalence in different areas.

Tinea capitis was on top of the list among the group of fungal infections. Our study revealed that 78.6% of cases with fungal infections were clinically diagnosed as tinea capitis. Similar results were reported 76.4% in Egypt [20], 87.9% in Nigeria [21] and 65.58% in India [5]. On the other hand, low frequency of tinea capitis was reported 1.0% in Palestine [23] and 2.7% in Iraq [22].

Tinea capitis was more in males than females in our study. Other studies [23,22,24] revealed difference in which females were more affected.

The reason for a higher rate of tinea capitis among males, may be attributed to the short hair of males which facilitates easy reach of the fungal spores to the scalp, frequent sharing of combs and caps. Also, frequent visit to local barbers where the barbing instruments may be infected [22].

Viral infections represents (11.2%) of all studied cases in this work. Similar results were reported by other investigators [2,10] were 11.7% and 13.4% respectively. Higher prevalence 17.6% [7] and lower prevalence 3.6% [5] were reported.

The commonest viral disease in our study was chicken pox representing 71.3% of all cases with viral infections. Low rates of chicken pox 1.9% and 3.9% were reported by others [7,2] respectively. Warts were the commonest viral diseases in their studies that were 74.2% and 81% respectively. Molluscum contagiosum was the commonest 53.91% in another study [5].

Heininger and seward [25] mentioned that the epidemiological variation of varicella might related to difference in population density, risk of exposure, difference in virus transmission, environmental and social factors or combination of all these factors. Also in temperate climates, varicella exhibits an annual epidemic pattern with peak incidence in late winter and spring.

Eczematous skin diseases came in the fourth position among the studied groups and reached 12.7%. They were next in frequency to fungal infections. They were recorded to be in the second position in India 26.95% [5] and Pakistan 21% [6].

In other parts of the world, dermatitis was on top of the list among the studied groups of skin diseases. It was reported 45.73% in Switzerland [10] and 57.7% in Kuwait [7].

Pityriasis alba, was the most common type of eczema in the present study representing 48.1% of all cases with eczematous skin diseases. This was in agreement with a study from upper Egypt [3].

The frequency of pityriasis alba in other areas of the world showed different results, it was 5.2% in Kuwait [7], 2.5% Switzerland [10] and 1.6% Turkey [2].

http://www.edoj.org.eg
A male predominance of pityriasis alba was observed in our study 52.9%. This was in agreement with other reports [7,2]. They found that 55.0% and 66.7% of cases were males respectively. While in another report [8] females were more affected.

As regard seasonal variations, most cases of pityriasis alba were found in winter months 48.0% and this was in agreement with one study [8] but other study [2] showed that most cases occurred in spring months 37.3%.

Low frequency of atopic dermatitis was observed in our study that contributed to 2.6% of all cases. Similar results 0.1% and 5.2% were respectively reported [9,5].

The frequency of atopic dermatitis in other areas showed different results, 31.3% in Kuwait [7], 25.9% in Switzerland [10] and 11.8% in Turkey [2]. A complete absence of atopic dermatitis was observed in a study from Ethiopia [26].

This disparity between the low frequency of atopic dermatitis from, India or the complete absence in Ethiopia and high figures from developed countries can be explained by the difference in industrialization, "hygiene-hypothesis", climate and dietary habits [5]. On the other hand increased exposure to microbes and infections in early life might protect against atopy [27].

In our study the highest frequency, 60%, of atopic dermatitis was observed in the preschool age group, while infantile group was the most prevalent 33.5% and 50.7% respectively in other studies [10,2].

The peak seasonal frequency was during winter (34.2%) in the present study. Similar results 35.2% were obtained [2]. While higher frequency in autumn 50% was reported [8].

Papular urticaria represents a high frequency in this study (5.5%). This is similar with two studies from India that reported 3.5% [5] and 5.2% [9]. Low frequency, 0.13%, was reported in Kuwait [7] and 0.6% in Turkey [2]. In the present study it was most prevalent in the infantile group 71.6%. While it was the most prevalent 50.1% in preschool age group in another report [5].

The cases of papular urticaria showed high prevalence in summer 45.1% in the present study that was reported 41% [2] and 47.6% [8] by others.

High frequency of papular urticaria may be due to the hot climate and insect bites [5].

Another condition peculiar to the hot climatic conditions is miliaria which representing 4.8% of all cases. Similar result, 5.4%. was reported [5] while it was reported 0.8% by others [2].

The peak seasonal frequency occurred during summer months 83.3% as the climate in our country is hot and humid in summer months. This result was in agreement with one report [8] in which most cases were recorded during summer months 90.0%.

http://www.edoj.org.eg
Psoriasis had a frequency of 0.4% in this study. Nearly similar observation were reported 0.2% [8] and (0.5%) [5]. The frequency of psoriasis in other areas were different, it was 4.0% in Kuwait [7], 2.0% in Switzerland [10] and 3.1% in Turkey [2].

A female predominance of psoriasis was observed in our study. This was in agreement with other reports [8,7,2].

In our study vitiligo was observed in 0.4% of studied cases. Nearly similar observations were reported in some studies, where it was reported 0.8% in Switzerland [10], 1.5% in Kuwait [7] and 1.6% in Turkey [2].

Vitiligo was more in females than males in the present and other study [7]. But it affected more males in another [2].

Alopecia areata was low in our study, contributing to 0.6% of patients. This was in agreement with 1.09% by others [5]. The frequency of alopecia areata has been reported to be higher. It was 6.7% in Kuwait [7], 2.4% in Turkey [2] and 2.2% in Switzerland [10].

Alopecia areata was more in males than females in our study. This was in agreement one report [2]. But another report [7] was different as females were more affected.

Genetic disorders observed in low frequency in our study, representing 0.4% of all studied cases. This was in agreement with other results reporting 0.1% [8]. High frequency of genetic disorders was observed in other parts of the world, 2.13% in India [5] and 6.4% in Pakistan [6].

Sardana et al [5] mentioned that the incidence of consanguineous marriage is high among rural population, which help in propagation of genetic disorders in families.

Low frequency of nevi was observed in our study, representing 0.2% of all cases. Similar results, 0.1% and 0.5%. were reported [8,5]. High frequency of nevi, 9.1%, was observed in Switzerland [10].

In our study, linear epidermal nevus was the most common followed by nevus depigmentosus. This was in agreement with other report [5] while the common nevi reported [8] were hairy nevus, nevus sebaceous and linear epidermal nevus.

The differences and similarities exist between our study and other studies could be explained by the different methods of performing the survey. The variations in time, duration of such studies, sample type and size are very important factors. The variations in environmental, geographical locations and climatic factors are of great importance.

In Al Sharqia governorate, skin diseases are fairly common in children especially infectious diseases.

We recommend improvement of socioeconomic status by improvement of the level of education and family income. Taking measures to overcome overcrowding especially in schools. Parental education especially of mothers is important. Educated

http://www.edoj.org.eg
mothers are able to appreciate and utilize health promotion and disease prevention services for their children. Regular visits by medical staff to rural areas will provide care, treatment and health education about the most frequent skin diseases and could control such conditions.

References


8. Amer MA and El-Said MM (1990); Common skin diseases in infancy and childhood. Thesis; M.D, Dermatology and Venerology Department, Zagazig University.


16. AL-Shawa RM Pediculus capitis, infestation according to sex and social factors in Gaza Governorate. The Islamic University Journal 2008 ;16; 75-83.


