Trends in the pattern of skin diseases in the last four decades at Assiut University Hospital - Upper Egypt

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Summary

The pattern of skin diseases represents an index for community development and quality of provided health care, and it is important to build community-directed health care strategies. This study aimed to describe the current pattern of skin diseases and to assess the change in the pattern of dermatological diseases for patients attending Assiut University Hospital by comparing the study findings with the results of a similar previous study conducted in the period 1969-1973.

Results

A total of 57,884 patients were registered during the period 2008-2012 compared to 50,000 patients in the period 1969-1973. Our study demonstrated that the rate of the infectious skin diseases represents a respectable portion (37.9%) but, in the previous study it was 50.8% (p<0.001). However, viral infections were increasing from 4.5 to 18.7%. Generally, non-infectious skin diseases showed higher percentages in the present study than the previous study (62 vs 49.2%). The rate of dermatitis was increasing from 15.6% in the year 1976 to 24.5% in year 2012 particularly contact dermatitis.

Conclusion. There is a trend of increasing non-infectious skin diseases particularly contact dermatitis. On the other hand infectious skin diseases still occupied major portion particularly viral infections. Further studies on the trend of skin diseases in the community are needed.

KEY WORDS: trend; skin diseases pattern.

Introduction

Skin diseases have been identified as a public health problem in developing countries (1). Skin conditions may affect over 60% of the community and they account for a major part of the workload of primary health care workers (2, 3).

The pattern of skin diseases varies from one country to another and in various regions within the same country (4, 5). Some factors like genetic, environmental, racial, occupational, nutritional and habitual can influence the pattern of skin diseases (6-8). In addition, the diagnostic competence of doctors, expertise of dermatologists and availability of the latest diagnostic facilities play a crucial role (9).

In poor countries where overcrowding and poor sanitation may occur, infectious or ectoparasitic skin diseases such as secondarily infected scabies or pediculosis are more common (10, 11) while industrialization and urban living are correlated with elevated rates of atopic disease (12).

A comparative study at Dermatoclinic in Enugu, Nigeria (1999-2001) to data obtained since more than 30 years ago, Nnoruka (13) found that out of total 2871 patients aged between 18-73 years, the commonest skin disorders were allergic skin diseases (24.9%) followed by infections/infestations (19.1%) as opposed to infestation which accounted during 1968 and 1971 (33.7%). Among allergic disorders, eczema-dermatitis was the most prevalent followed by follicular (13.7%) and pigmentary disorders (11.1%).

In Egypt, an analytic study for the medical records of patients attended the dermatology outpatient clinic of Ain Shams University Hospitals showed that infection constituted most of the dermatoses (45.4%) and scabies was the most common disease (9.26%). Hypersensitivity came after the infections (22%) and, interestingly the dermatitis subgroup (12.94%) followed by infections/infestations (19.1%) as opposed to infestation which accounted during 1968 and 1971 (33.7%). Among allergic disorders, eczema-dermatitis was the most prevalent followed by follicular (13.7%) and pigmentary disorders (11.1%).

A cross-sectional study in rural Assiut Upper Egypt revealed that the commonest skin diseases were parasitic skin infestations (27.40%) of the total sample, followed by eczema/dermatitis group (19.82%), pigmented disorders (17.68%), fungal skin infections (16.17%), nevus disorders (16.10%), hair & scalp dis-
orders (12.07%) and bacterial infections (10.10%) (15).

With the time, the pattern of skin diseases may be differed due to change in and or development of new factors. So, this study aimed to describe the pattern of skin diseases among patients attended Dermatology outpatient clinics of Assiut University Hospital Upper Egypt, during 2008-2012 and also to assess the changing in the pattern of dermatological diseases by comparing the study findings with the results of a similar previous study conducted in the period 1969-1973.

Material and methods

The study was a retrospective review of medical records of the patients who attended Outpatients Clinics of Dermatology in Assiut University Hospital during the period from 1st January 2008 till the end of December 2012. The record of each patient was reviewed for age, sex, date of presentation and the diagnosis of skin disorders at time of attendance. The diagnosis of skin diseases was classified according to International Classification of Diseases ICD (10th version 2010). All patients of both sex, any age with any dermatoses were enrolled in this study. However, patients with indefinite diagnosis or diagnosed as having non-dermatological diseases were excluded.

Approval of ethical committee of Assiut Faculty of Medicine was obtained.

Statistical analysis

The collected data were coded, processed and analyzed using SPSS (Statistical Package for the Social Science) version 16. Descriptive statistics were calculated e.g.: frequency and percentage. Chi-square test was used to compare differences in frequencies of skin diseases in patients of the two studies. Missing data were excluded. The level of statistical significance was set at p-value <0.05.

Results

During a 5-year period (January 2008 - December 2012), 57,884 patients attended the dermatology outpatient clinics. Their age ranged from 1 month to 95 years, about half of them aged 18 to 39 years and males constituted 54.0%. According to ICD-10 classification, the registered diagnosis of skin diseases was presented in Table 1. Infections were the most common (38%) followed by hypersensitivity diseases (33.3%) and adnexal disorders (14.3%).

Figure 1 shows that the percent of infective skin diseases was significantly lower in the present study than that in the previous one in 1976 (50.8 vs 38.0%, p <0.001) while there was an increase in the percent of non-infective diseases. Table 2 shows that the percentages of bacterial, fungal, parasitic and mycobacterial infections were lower in the present study than those in the previous one, while viral infections had increased in present study (p <0.001). Table 3 presents the percentages of non-infective skin diseases in the present study and the previous one. It shows that there was an increase in percentages of contact dermatitis, atopic dermatitis, pityriasis alba, papular urticaria, acne vulgaris and psoriasis. However, percentages of neurodermatitis, prurigo, napkin dermatitis seborrheic dermatitis urticaria, and vitiligo had decreased. Regarding hypersensitivity related diseases (Figure 2) shows that the percent of dermatitis was increasing from 15.6% in the year 1976 to 24.5% in year 2012, p<0.001).

Discussion

Infective skin diseases

In the present study, infections still constituted a major portion (38%) of the total skin diseases; however, it constituted higher rate (50.8%) of the total skin diseases in the similar study reported by Abdel-Rehim et al. (16). It can be explained by somewhat improvement of socioeconomic status, sanitation programmes, health education work and the increased use of antimicrobial agents. El-Khateeb et al. (14) explained the increased incidence of infective skin diseases in the developing world where lack of hygiene, relative ignorance, and poverty play a major role.

Viral skin disease came on the top of infective group. It had a rate of 18.71% of the total with warts were the commonest and having a rate of 17.01%.
warts was reported among male and at >18-39 years age group. Williams et al. (17) explained that urbanization may be an important factor in determining the increased prevalence of warts. Higher rate among male may be due to exposure to frequent trauma and stress.

In Assiut, a much lower rate of viral infections (4.47%) was reported by Abdel-Rehim et al. (16). The rate of warts were comparatively higher with reports from Saudi Arabia (Al-Khobar, Hail and Najran) (11.9, 8.4 and 6% respectively) (18-20). Fungal infections constituted 8.18% of the total diseases. A higher rate of 11.71% was revealed by Abdel-Rehim et al. (16). Much higher rate 16.17% was reported in rural Assiut, Abdel-Hafez et al. (15). Also, in Tunisia, hospital based study a rate of 16.38% was revealed by Souissi et al. (21). It seems that the reason for such difference between various reports may be due to variation in sample size, the form of research. In addition, climatic, racial and hygienic factors of the communities.

In the present study, T. versicolor was the commonest fungal infection as it had a rate of 3.82% of the total. Also it came at the top of the list reported in Abdel-Rehim et al. study (16). In rural Assiut, a rate of 5.74% was reported by Abdel-Hafez et al. (15). Relatively higher rate of T. versicolor (7.7%) was reported in hospital based study in Cairo (14). In Northern Malawi, much higher rate (17.9%) was observed among the total population (22). The difference in the prevalence rates of T. versicolor among different surveys has been devoted mainly to individual susceptibility. In addition, environmental factors may play a role with higher prevalence rate in tropical climate than in temperate one.

Bacterial skin diseases were the third from all infections with a rate of 7.9% of the total. Impetigo had a rate of 5.08% of the total. In Iraq, in across-sectional study in urban areas, Al-Rubiay and Al-Rubaiy (23) reported a rate (1.0%) of impetigo. Bacterial infections came third, and impetigo was the commonest (5.77%) in study of El-khateeb et al. (14). Bacterial infections had the highest rate in the study by Abdel-Rehim et al. (16) (20.4%). Such high rate may be attributed to poor personal hygiene, lack of new drugs, and bacterial resistance to the available antibiotics.

Parasitic diseases represented 3.1% of the total and scabies had the highest rate 2.11% of the total. A higher rate (8.9%) was observed in study by Abdel-Rehim et al. (16), with scabies had a rate of 3.1% of the total. In the study by El-Khateeb et al. (14), the rate of par-

### Table 2 - Comparison between percentages of infective skin diseases in study 1976 and in study 2012.

<table>
<thead>
<tr>
<th>Study (1976)</th>
<th>Study (2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>% to group (n=25398)</td>
</tr>
<tr>
<td>Viral</td>
<td>2236</td>
</tr>
<tr>
<td>Bacterial</td>
<td>10188</td>
</tr>
<tr>
<td>Fungal</td>
<td>5855</td>
</tr>
<tr>
<td>Parasitic</td>
<td>4444</td>
</tr>
<tr>
<td>Mycobacteria</td>
<td>2675</td>
</tr>
</tbody>
</table>

*p <0.001
asitic diseases had a rate of 11.8% of the total and came second in the study with scabies (9.26% of the total). The rate of scabies varies largely with variables in each community even within the same locality. For example in Sokoto, Nigeria, scabies was 1.4%, while in a nearby village was 16% (24).

Mycobacterial diseases (leprosy only) had less frequent rate (0.11% of the total). Lower rates of leprosy were reported: Tunisia (0.004%) (21), Cairo (0.08%) (14), Kaduna (Nigeria) (0.1%) (8) and Bandar Abbas (Iran) (0.3%) (25). Higher rate of leprosy (1.2%) was reported in Ibadan (Nigeria) (26). Also, in Assiut, a rate of 5.14% was reported by Abdel-Rehim et al. (16). The decreased rate in the recent study may be explained by the introduction of multi-drug therapy for leprosy, availability of specialized hospitals that dedi-

Table 3 - Percentages of non-infective skin diseases in study 1976 versus in study 2012.

<table>
<thead>
<tr>
<th>Skin disorders</th>
<th>Year (1976)</th>
<th>% to total diseases (n= 50000)</th>
<th>Year (2012)</th>
<th>% to total diseases (n= 57884)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypersensitivity diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact dermatitis</td>
<td>752</td>
<td>1.50</td>
<td>10154</td>
<td>17.54</td>
</tr>
<tr>
<td>Atopic dermatitis</td>
<td>974</td>
<td>1.95</td>
<td>1752</td>
<td>3.02</td>
</tr>
<tr>
<td>Neurodermatitis</td>
<td>625</td>
<td>1.25</td>
<td>128</td>
<td>0.22</td>
</tr>
<tr>
<td>Pityriasis alba</td>
<td>208</td>
<td>0.42</td>
<td>605</td>
<td>1.04</td>
</tr>
<tr>
<td>Prurigo</td>
<td>1317</td>
<td>2.63</td>
<td>116</td>
<td>0.2</td>
</tr>
<tr>
<td>Exfoliative dermatitis</td>
<td>38</td>
<td>0.076</td>
<td>52</td>
<td>0.09</td>
</tr>
<tr>
<td>Infectious eczematoid</td>
<td>1768</td>
<td>3.53</td>
<td>20</td>
<td>0.04</td>
</tr>
<tr>
<td>Napkin dermatitis</td>
<td>437</td>
<td>0.87</td>
<td>196</td>
<td>0.34</td>
</tr>
<tr>
<td>Seborrhoeic dermatitis</td>
<td>1750</td>
<td>3.53</td>
<td>258</td>
<td>0.45</td>
</tr>
<tr>
<td>Urticaria</td>
<td>4110</td>
<td>8.22</td>
<td>3004</td>
<td>5.19</td>
</tr>
<tr>
<td>Erythema multiiforme</td>
<td>276</td>
<td>0.55</td>
<td>140</td>
<td>0.24</td>
</tr>
<tr>
<td>Drug eruption</td>
<td>314</td>
<td>0.63</td>
<td>82</td>
<td>0.14</td>
</tr>
<tr>
<td>Papular urticarial</td>
<td>820</td>
<td>1.64</td>
<td>1715</td>
<td>2.96</td>
</tr>
<tr>
<td>Adnexal diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acne vulgaris</td>
<td>1998</td>
<td>3.99</td>
<td>4039</td>
<td>6.98</td>
</tr>
<tr>
<td>Alopecia aerate</td>
<td>440</td>
<td>0.88</td>
<td>887</td>
<td>1.53</td>
</tr>
<tr>
<td>Miliaria</td>
<td>274</td>
<td>0.55</td>
<td>540</td>
<td>0.93</td>
</tr>
<tr>
<td>Other disorders</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitiligo</td>
<td>1905</td>
<td>3.81</td>
<td>1616</td>
<td>2.79</td>
</tr>
<tr>
<td>Pityriasis rosea</td>
<td>454</td>
<td>0.91</td>
<td>278</td>
<td>0.48</td>
</tr>
<tr>
<td>Psoriasis</td>
<td>880</td>
<td>1.76</td>
<td>1198</td>
<td>2.07</td>
</tr>
<tr>
<td>Lichen planus</td>
<td>316</td>
<td>0.63</td>
<td>494</td>
<td>0.85</td>
</tr>
<tr>
<td>Discoid lupus erythematosus</td>
<td>200</td>
<td>0.4</td>
<td>45</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Figure 2 - Percentages of dermatitis and urticaria in study 1976 versus study 2012.
cated for the management and follow-up of leprosy patient, and the health education programmes.

**Non-infective skin diseases**

Hypersensitivity diseases followed infections, with a rate (33.30%) of total skin diseases among studied patients. In Nigeria (Ibadan) a rate of 30.2% was observed (26). It was the second common group in Iran (24.5%) (25). In Hail and Al-Khobar in Saudi Arabia rates of 16.3% and 19.6% were detected (18, 19). The high rate may be due to industrialization, increasing use of chemicals, diet changes, and use of food additives that may have acted as external irritants and allergens.

Dermatitis occupied the first most common subgroup within the hypersensitivity diseases with a rate of 24.50% of the total. Dermatitis group represented 15.6% in the study reported by Abdel-Rehim et al. (16).

Urticaria and its related diseases was the second subgroup and constituted 8.79%. Similar results were detected by Abdel-Rehim et al. (16) (8.8%), and 7.9% in Kaduna (Nigeria) by Yahya et al. (8).

The finding that dermatitis had high rate with contact dermatitis (17.54%) of the total) and urticaria (5.19%) were of most common detected skin diseases may represent an indicator of relative development and urbanization of the community.

As regarding atopic dermatitis, the rate in the present study was 3.03%. In UK, a rate for all age groups in a semirural community in Scotland was 2.3% (27). A lower rate in the study was reported by Abdel-Rehim et al. (16) (1.9%). Atopic dermatitis is regarded as a common problem although the rate estimated varied widely in different communities and countries. In developing countries the rate of atopic dermatitis is lower than in industrialized countries. The change in rates may be due to genetic, ethnic or environmental factors which play crucial role in the disease expression (28). Moreover, changes related lifestyle, degree of urbanization (29) or the disease definition (30) might also play a role.

Acne vulgaris has a rate (6.97%) of the studied patients. Nearly similar findings were reported from Cairo (6.11%) (14), rural areas in Nepal (7.7%) (31). Lower rates were observed (16) (3.99%) and in rural Egypt (15) (5.37%). On the other hand, a prevalence rate of 11.7% was reported from rural villages survey in Iran (32). The difference in the rates of acne between studies may be due to genetic susceptibility, hormonal, environmental factors or dietary factors (33, 34).

Diffuse hair loss was also a prevalent dermatoses with a rate of 4.15%. Nearly similar finding was reported from Cairo (3.08%) by El-Khateeb et al. (14). It was also more prevalent among females than males (87.6 versus 28%) and at the age group (>18-39 years) (76.1%). This corresponds with the period of life stresses particularly child bearing period in females, besides other physical stress or nutritional factor and increased consciousness about self-imaging among patients, especially females.

Miliaria constituted (0.93%) of the studied patients and nearly similar rates (0.55%) by Abdel-Rehim et al. (16). It had a rate of 5.84% in rural Assiut (15). In Mexico, miliaria was 2% of rural and 8% of urban population (35). These variation among different surveys may be due temperature and humidity variation beside individual variation in response to heat stimuli. Pigmentary skin disorders had a rate of 6.19% in the present study. Vitiligo was the commonest disease in the group with a rate of 2.79%. Variable rates of vitiligo were reported: Egypt (3.81%) (16), Yemen (4%) (36), Ibadan (Nigeria) (4.7%) (26) and Saudi Arabia (Al-Khobar) (5%) (18).

In this study psoriasis was 2.07%, which occupied a midpoint among percentages in other studies, Tunisia (3.4%) (21) and Saudi Arabia (Hail) (3.55%) (19). Lower rates were previously reported in (Assiut) Egypt (1.76%) (0.19%) (15, 16 respectively).

As regard, skin tumours, benign neoplasm had a rate of (2.25%) of the total) and seborrheic keratosis came of the top (1.49%) of the total). The rate of seborrheic keratosis was comparatively higher with reports from: Kaduna (Nigeria) (0.2%) (8) and Cairo (0.08%) (14). Malignant neoplasm had a lower rate (0.08% of the total) and basal cell carcinoma had a rate of 0.04%, followed by Kaposi’s sarcoma (0.017%). The rate of basal cell carcinoma was lower from other reports: Hajah (Yemen) (0.25%) (36) and Cairo (0.07%) (14). Lower rates can be explained by melanin which act as a protecting agent against ultraviolet rays in studied populations.

In the present study, dermatitis preceded many infectious diseases as an index of the development and urbanization of the community. However, infections still constitute major portion among other diseases. Fortunately, they are potentially controllable and preventable, and therefore, health care strategies that target infections represent the key for an efficient national healthcare program.

**References**


