

Epidemiology of Cutaneous Diseases in a Military Medical Center in Eastern Anatolia

DOĞU ANADOLU'DA BİR ASKERİ TIP MERKEZİNDEKİ DERİ HASTALIKLARININ EPİDEMİYOLOJİSİ

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Abstract

Objective: In Eastern Anatolia, a region in Turkey, a few epidemiological surveys are available on the prevalence of skin diseases. This study aims to define the prevalence of dermatologic disorders of the patients admitted to a military medical center in Erzurum, which is regarded as a medical center city of Eastern Anatolia.

Material and Methods: 7155 patients consulted in the dermatology outpatients' department at Mareşal Çakmak Hospital between November 2001 and November 2003 had been studied retrospectively.

Results: A total of 7155 outpatients were reviewed retrospectively. The commonest skin disorder categories diagnosed were dermatitis (17.61%), viral diseases (10.87%), erythematopapulosquamous diseases (9.15%), acne vulgaris (8.96%), bacterial diseases (6.13%), fungal infections (5.49%), and diseases of hair (5.42%). Premalignant tumours accounted for only 0.26 per cent. There were not any malignancies.

Conclusion: The results showed that the most frequent 10 skin disorders in this study were similar to most other studies. These are mostly preventable diseases, such as contact dermatitis, verrucae, bacterial diseases, and fungal infections, by planning productive health care programs. These kind of surveys repeated periodically may be useful in monitoring the results of the programs.

Key Words: Retrospective study, skin disorders, Erzurum, Turkey

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Özet

Amaç: Doğu Anadolu'da deri hastalıklarının prevalansı ile ilgili epidemiyolojik araştırma sayısı oldukça azdır. Bu çalışma, Doğu Anadolu'nun medikal açıdan merkezi olarak kabul edilen Erzurum'daki bir askeri tıp merkezine başvuran hastalardaki dermatolojik hastalıkların prevalansının belirlenmesini amaçlamaktadır.

Gereç ve Yöntemler: Kasım 2001-2003 tarihleri arasında Mareşal Çakmak Hastanesi dermatoloji polikliniğine başvuran 7155 hasta retrospektif olarak çalışılmıştır.

Bulgular: Toplam 7155 hasta retrospektif olarak değerlendirilmiştir. En sık gözlenen deri hastalık kategorileri şunlardır: Dermatitler (%17,61), viral hastalıklar (%10,87), eritematöpapüloskuamöz hastalıklar (%9,15), akne vulgaris (%8,96), bakteriyel hastalıklar (%6,13), fungal enfeksiyonlar (%5,49) ve saç hastalıkları (%5,42). Premalin tümör oranı sadece %0,26 olarak saptandı. Herhangi bir deri malignitesi saptanmadı.

Sonuç: Elde edilen sonuçlar, bu çalışmada en sık rastlanan ilk 10 deri hastalığının başka çalışmalardakilerle benzer olduğunu göstermiştir. Bu hastalıkların arasında yer alan kontakt dermatit, siğil, bakteriyel hastalıklar ve fungal enfeksiyonlar gibi hastalıkların çoğu, planlanacak uygun programlarla önlenilecek hastalıklardır. Periyodik olarak yinelenen bu tür istatistiksel çalışmalar da bu programların sonuçlarını takip etmekte kullanılabilir.

Anahtar Kelimeler: Retrospektif çalışma, deri hastalıkları, Erzurum, Türkiye

There are scarce number of surveys about the prevalence of dermatologic disorders in Turkey, and especially in Eastern Anatolian region. Epidemiology is a relatively novel addition to dermatology in Turkey. In order to start to collect some data for which they can be used for

statistics in the future, I decided to review our data retrospectively between November 2001 and November 2003. Mareşal Çakmak Hospital (MCH) is a military based hospital, serves all of the military personnel in mainly Erzurum and the rest of Eastern Anatolia, including officers, civilian employees, veterans, retired civil servants, and other civil people. Erzurum is a historical and the largest city in eastern Anatolian region and is one of the main ski-centers in Turkey. It is approximately 2000 meters above sea level and the population is 400.000. The winter is very long and snowy in the

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city. The hospitals, including MCH, give medical supports also to the people of surrounding cities in Eastern Anatolia.

This retrospective study was performed in order to determine the frequency of dermatologic disorders in this region during the specified time period mentioned above.

Material and Methods

This was a retrospective study and all registered outpatients were collected retrospectively between November 2001 and November 2003. Data on patient demographics and clinical diagnoses were recorded. All of the diagnoses were categorized and tabulated. All of the numbers and percentages given in the text were obtained from all consultations. Prevalence rates have been rounded to the nearest whole number in the text.

Results

During the 2 year-period, 7155 outpatients came to department of dermatology at MCH from all around the East Anatolian region. Ages ranged from 2 years to 75 years (mean age: 27.7 years), 26.4% of them were female, and 73.6% were male. Apparently there was a male preponderance. Categorized diagnoses and subsets are shown in Table 1. The rarely diagnosed (<0.1%) dermatologic disorders which could not be grouped or subgrouped in Table-1, are shown in Table 2. The first 10 most frequent diseases are shown in Table 3.

Most of the contact dermatitis cases were mainly secondary to irritation. Atopic dermatitis was diagnosed mostly in children and none of them was in generalized form. Verrucae did not consist verruca venerealis and they were mainly on hands and feet. In erythematopapulosquamous (EPS) diseases, lichen simplex chronicus was diagnosed mostly in winter season. Acne vulgaris constituted 8.7% of studied population.

Dermatophytosis was at top of the list of fungal infections. Tinea pedis was the most frequent dermatophytosis with a prevalence rate of 1.8%, followed by tinea corporis (0.4%). There was not any deep fungal infection.

Diseases of hair, included scarring alopecia, telogen effluvium and trichotillomania. Vitiligo was the main disorder of pigmentation with a prevalence rate of 1.8%. Acrochordon, lipoma and keloid were included under 'other' in benign tumour category. Scabies was the most common (1.5%) disease in parasitic disease category.

Diseases of the nails, chilblain, drug eruption, premalign tumours, leishmania cutis, Behçet syndrome, cheilitis simplex, and discoid lupus erythematosus constituted significantly minor prevalences (0.2-1%). There were no malign tumours. Cold related diseases, such as chilblain and acrocyanosis accounted only 0.7%.

Discussion

The epidemiology of skin diseases in Erzurum, which is the crowdest city in Eastern Anatolia, has not been formerly and formally monitored. Neither private nor clinic-based surveys have been published for this region. Therefore the results of this study could not be compared with any other study performed before in this region.

Dermatitis was the commonest (17.7%) diagnostic category in this survey. Contact dermatitis (CD)(9.6%) consisted mainly of the cases of cumulative irritant contact dermatitis, and the patients were usually housewives and employees working with industrial oil. These cases were seen especially in winter season which is very cold and snowy. The people in this region do not accustom to wear gloves unless it is freezing cold, and this facilitated development of CD. In a study of Bay-sal V, et al, performed in Turkey, CD was also the most encountered (13.2%) dermatological disease in Göller region.¹ Chua-ty G et al, performed a study at National Skin Centre in Singapore, of which the most common diagnosis was dermatitis (34.1%).² In another study, Mahé et al found that dermatitis was also the commonest diagnosis (20.4%) in Bamako.³ In some other studies CD was among the first five frequently diagnosed skin diseases with different rates.⁴⁻⁸

Viral disease category did not include condy-lomata acuminata, molluscum contagiosum and

Table 1. Skin diseases in 7155 dermatologic outpatients in Erzurum, by the main diagnostic category and subsets.

Disease	n	(%) †	Disease	n	(%) †
Dermatitis	1260	(17.60)	<i>Seborrheic keratosis</i>	18	(0.25)
<i>Contact dermatitis</i>	684	(9.55)	<i>Others</i>	137	(1.91)
<i>Atopic dermatitis</i>	200	(2.79)	Urticaria	222	(3.10)
<i>Seborrheic dermatitis</i>	149	(2.08)	Xerosis	219	(3.06)
<i>Nummular dermatitis</i>	133	(1.85)	Melanocytic lesions	191	(2.66)
<i>Dyshydrotic dermatitis</i>	43	(0.60)	Sexually transmitted diseases	188	(2.62)
<i>Others</i>	51	(0.71)	<i>Condylomata acuminata</i>	99	(1.38)
Viral diseases	778	(10.87)	<i>Molluscum contagiosum</i>	63	(0.88)
<i>Warts</i>	636	(8.88)	<i>Herpes genitalis</i>	18	(0.25)
<i>Herpes labialis</i>	66	(0.92)	<i>Syphilis</i>	8	(0.11)
<i>Herpes zoster</i>	65	(0.90)	Hiperhidrosis pedis	183	(2.55)
<i>Chickenpox</i>	11	(0.15)	Parasitoses	170	(2.37)
EPS diseases*	655	(9.15)	<i>Scabies</i>	110	(1.53)
<i>Psoriasis</i>	382	(5.33)	<i>Insect bite</i>	39	(0.54)
<i>Lichen simplex chronicus</i>	94	(1.31)	<i>Pediculosis</i>	21	(0.29)
<i>Lichen planus</i>	85	(1.18)	Diseases of blood vessels	104	(1.45)
<i>Pityriasis rosea</i>	56	(0.78)	<i>Acrocyanosis</i>	18	(0.25)
<i>Others</i>	38	(0.53)	<i>Angiokeratom</i>	15	(0.20)
Acne vulgaris	622	(8.69)	<i>Others</i>	71	(0.99)
Bacterial diseases	439	(6.13)	Papular urticaria	90	(1.25)
<i>Pitted keratolysis</i>	107	(1.5)	Diseases of nails	68	(0.95)
<i>Folliculitis</i>	177	(2.47)	<i>Onychodystrophy</i>	56	(0.78)
<i>Furunculosis</i>	45	(0.62)	<i>Ingrown nail</i>	2	(0.02)
<i>Lupus vulgaris</i>	3	(0.04)	<i>Others</i>	10	(0.14)
<i>Others</i>	214	(2.99)	Epidermal nevi	62	(0.86)
Fungal infections	393	(5.49)	<i>Becker nevus</i>	17	(0.25)
<i>Dermatophytosis</i>	212	(2.96)	<i>Nevus sebaceus</i>	8	(0.11)
<i>Tinea versicolor</i>	110	(1.53)	<i>Nevus comedonicus</i>	2	(0.02)
<i>Candidiasis</i>	52	(0.72)	<i>Others</i>	35	(0.49)
<i>Onychomycosis</i>	19	(0.26)	Chilblain	31	(0.43)
Diseases of hair	388	(5.42)	Drug eruption	31	(0.43)
<i>Alopecia areata</i>	252	(3.52)	Sunburn	28	(0.39)
<i>Alopecia areata diffusa</i>	87	(1.21)	Aphthous ulcer	23	(0.32)
<i>Hirsutism</i>	9	(0.12)	Traumatic ulceration	20	(0.27)
<i>Hypertrichosis</i>	9	(0.12)	Premalign tumours	19	(0.26)
<i>Others</i>	31	(0.43)	<i>Actinic keratosus</i>	18	(0.25)
Disorders of keratinization	275	(3.84)	<i>Cornu cutaneum</i>	1	(0.01)
<i>Keratosis pilaris</i>	55	(0.76)	Morphea	19	(0.26)
<i>Ichthyosis</i>	43	(0.60)	Acne rosacea	18	(0.25)
<i>Palmoplantar keratoderma</i>	13	(0.18)	Acne inversa	17	(0.23)
<i>Peeling skin syndrome</i>	3	(0.04)	PLE	15	(0.20)
<i>Others</i>	161	(2.25)	Leishmania cutis	14	(0.19)
Disorders of pigmentation	256	(3.57)	Behçet syndrome	14	(0.19)
<i>Vitiligo</i>	126	(1.76)	Cheilitis symplex	14	(0.19)
<i>Melasma</i>	57	(0.79)	Orogenital ulceration	12	(0.16)
<i>Others</i>	73	(1.02)	DLE	12	(0.16)
Benign tumours	251	(3.50)			
<i>Epithelial cyst</i>	96	(1.34)			

*EPS: Erythemapapulosquamous; PLE: Polymorphic light eruption;

†Main disease groups were given only when $\geq 0.1\%$.

herpes genitalis which were categorized as “sexually transmitted diseases”. In this category, the main problem was warts (8.9%). Almost all of the individual patients had multiple warts on their hands, feet or faces. Solitary wart was so rare. When we compare the prevalence rate of warts with other studies, the rate in this study was too high. The rates

in other studies were 3.5, 0.9, 0.97, and 1.67% respectively.^{1,3,5,9} Most of the patients with multiple viral warts were soldiers, employees and officers. The major reason that they claimed not to seek medical advice was, being so busy, nothing else. I think that this was an underestimation of the disease by the patients because it was not life threatening.

Table 2. The skin diseases of which percentages were less than 0.1.

Disease	No.of cases
Neurofibromatosis	7
Stria distensea	7
Pemphigus	6
Pruritus ani	6
Erythema nodosum	6
Perifolliculitis capitis	5
Scrotal tongue	5
Lichen amyloidosis	2
Lichen sclerosis	2
Knuckle pads	2
Traumatic tattoo	2
Cutis verticis gyrata	1
Xeroderma pigmentosum	1
Glossodynia	1
Cheilitis granulomatosa	1

Table 3. The most frequent 10 skin diseases in the study.

No	Disease	%
1.	Contact dermatitis	9.55
2.	Warts	8.88
3.	Acne vulgaris	8.69
4.	Bacterial diseases	6.13
5.	Fungal infections	5.49
6.	Psoriasis	5.33
7.	Alopecia areata	3.52
8.	Benign tumours	3.50
9.	Urticaria	3.10
10.	Xerosis	3.06

Acne vulgaris (AV) was the third common skin disease with the incidence of 8.7% in this study. There was not any registered steroid-induced acne and pomade acne. In the other studies performed in black and white population, the prevalence of AV ranged from 2.5 to 29.21%.^{1-3,5,6,8-12} But in only white population it was approximately 10%.^{1,2,11}

Bacterial diseases accounted for 6.1% of all diagnosed skin diseases. This rate was between 3-10.1% in other similar studies.^{1-3,5,6} The main portion of this group consisted of folliculitis (2.4%), and pitted keratolysis (PK) (1.5%) in this study. Hyperhidrosis, maceration, friction from clothes

and some skin care products were the main causes for bacterial folliculitis. Hyperhidrosis and maceration of feet were also the facilitating factors of PK. Ecthyma (0.4%), cellulitis (0.4%), impetigo (0.3%), and furunculosis (0.6%) were some of the other bacterial diseases.

The prevalence rate of fungal infections in all skin disorders was 5.5%. This result was very close to the rates of the studies conducted by Chua-ty G et al, Hartshorne ST and Henderson CA.^{2,6,13} In the studies of Abdel-Hafez K, et al and Mahé A, the rates were 16.17 and 13.6% respectively.^{3,5} Such differences in various reports may be due to the variation of climatic and hygienic factors of these populations. I was expecting a higher rate than this rate because of having relatively high proportion of military personnel in the study population. This relatively low rate can be explained with the efficient education of military personnel about the hygienic rules.

Tinea versicolor had a prevalence rate of 1.5% in this study. This rate was 17.9% in northern Malawi and 0.8% in the USA.^{14,15} These prevalence rate discrepancies may be explained with individual susceptibility and distinctive climatic features.

There was only one tinea capitis in a five year girl (0.01%). This was a noteworthy low prevalence rate in a developing region of a developing country. The rate was higher than the rate in this study (0.14%) in another similar study performed in Turkey.¹

Psoriasis ranked the sixth skin disorder with a prevalence rate of 5.3%. The rate was less than 1% in some studies conducted in tropical regions.^{3,5,9} In other studies in Turkey and England, the rates were 2.6 and 1.5% respectively.^{1,16} Psoriasis affects 1-5% of the population, depending on what racial group is studied.¹⁷ Tropical races are less frequently and less severely affected than white people.¹⁸

Alopecia areata had a prevalence rate of 3.5% which was higher than the other studies of which the rates were between 0.5-2.3%.^{1,3,6,9,19,20} Most of the cases were male and majority of the males

were military personnel. Among the military personnel there were privates who obliged to serve the country for a distinctive period of time. The privates were away from home and some of them might be homesick. This stressful situation may be the only reason that can be suggested to explain the high rate.

Benign tumours had a prevalence rate of 3.5% in all cases. Epithelial cyst (1.3%) was the commonest one followed by seborrheic keratosis (0.2%). Acrochordon, lipoma, and fibroma were some of the other benign tumours in this category. This rate was between 0.8-29.7% in the other studies.^{3,6}

Premalign tumours (0.3%) were actinic keratosis (0.25%) and cornu cutaneum (0.01%) in the present study. There were not any malignant tumour diagnosed in this period. In a study conducted in Egypt, the prevalence rate of actinic keratosis (0.3%) and malignant tumors (only one basal cell carcinoma, 0.01%) were very close to the rates of this study.⁵ If the melanin pigment in Egyptian skin is compared to Turkish skin (mostly Fitzpatrick skin type III and IV), then the rates in this study may be accepted lower than that one in Egypt. In another study performed in South Africa, the prevalence rate of malign tumours in black, white and coloured people were 1.4, 15.1, and 0.9% respectively. This rate was 0.5% in the study conducted by Baysal V, et al.¹ The scarcity of premalign and malignant tumours in our study, may be due to conservative clothing attitude in this region. Other reasons could be the relatively younger population in this study and not staying of military personnel and their families more than 6 years in this region.

The prevalence of urticaria is estimated to be 1-4% in general population.²¹ In this study the rate was 3.1%. Xerosis had a higher rate (3.1%) in this study than the other studies performed in different regions, of which rates were between 0.2-0.8%.^{3,6} This situation can be explained by decreased humidity in the long and very cold winter because of central heating. In addition, It is observed that most people had not been educated about lubricating their skin repeatedly or after baths in this situation.

Although there is a very cold and long winter, cold related diseases such as chilblain (0.4%) and acrocyanosis (0.25%) was paradoxically rare. The other skin disorders that were diagnosed in this study were in low rates similar to the other studies mentioned above.

Prevalence surveys suggest that the bulk of the skin disease problem is made up of less than 10 disease groups which were alike in most studies, although in different orders and rates. CD, warts, bacterial diseases, and superficial fungal infections which can be easily diagnosed, treated, and prevented, were the most common encountered diseases in our study and each of them were also among the first five common diseases in most studies.^{3,5,6,8,9,15,22-24}

Environmental factors and socio-economic status could effect the distribution of skin diseases. These parameters are very different in different regions of Turkey. Therefore, this kind of studies are of importance for obtaining statistical data of different socio-economic and climatic conditioned regions even in the same country. There remains the need for further studies in Eastern Anatolia and Turkey in a broader spectrum, in regular periods for allowing comparisons.

Because skin diseases have relatively benign nature, so far they had received little attention from health authorities in most countries. However, these kind of studies showed that some certain skin diseases mentioned above, especially transmissible ones, were important health problems for the population and they are mostly easily diagnosable, treatable, and preventable diseases. Besides, epidemiologic data are useful not only for monitoring changes in disease trends in the population, but also planning health care programs for them.

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