



Assessment of clinical diagnosis, age, gender and seasonal differences of children admitting to a dermatology clinic of a secondary health care institution

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Received 21 March 2017; Accepted 30 March 2017
Available online 06.04.2017 with doi: 10.5455/medscience.2017.06.8611

Abstract

An important characteristic of pediatric dermatology is the relatively frequent occurrence of skin diseases in children, which makes their relatives worried about them. We retrospectively reviewed electronic records of patients under the age of 18 who were admitted to a state hospital dermatology outpatient clinic between January 1, 2015, and December 31, 2015. Clinical diagnosis, age, gender, and admitting dates of the patients were recorded into an electronic database. The mean age of participants was 13.51 ± 4.65 years (median=15, min=1, max=18 years). The most common diseases are adnexal diseases in 4570 (34.8%) patients. This was followed by infections-infestations (n=3057, 23.3%), papulosquamous and eczematous dermatoses (n=3009, 22.9%); hair, nail and mucous membrane disorders (n=760, 5.8%); pigmentation disorders (n=341, 2.6%), urticaria, erythema and purpura (n=284, 2.2%); pruritus (n=269, 2.0%); neoplasms of skin (n=227, 1.7%); disorders due to physical agents (n=176, 1.3%); disorders of keratinization (n=55, 0.4%), respectively. We believe that the frequency and severity of children's skin diseases can be reduced by establishing appropriate preventive health policies and dissemination of educational programs, and it will be useful to organize training programs on common pediatric skin diseases, especially to primary care physicians.

Keywords: Pediatric dermatology, frequency, diagnosis

Introduction

The skin is the largest organ of our body. Since the complaints of skin diseases are frequently encountered, the primary care physician should be able to diagnose many problems and diseases related to the skin and appendages, and to make appropriate treatment, if necessary. Studies in developing countries have revealed that skin diseases are common in children and adolescents [1].

An important characteristic of pediatric dermatology is the relatively frequent occurrence of skin diseases in children, which makes their relatives worried about them. However, this doesn't show that the childhood skin diseases are difficult to diagnose and difficult to treat. The morphology, spread pattern and the location of skin lesions are important in terms of diagnosis [2].

The proportion of the child population to the general population is higher in developing countries. In our country, people in the 0-18 year age group constitute an important part of the total population (31.4%) [3].

In our country, pediatric dermatology is a field that is currently developing with only personal efforts, and

epidemiological data related to this field are needed. İnanır et al. investigated the relation of skin diseases with socioeconomic factors in children [4]. Serarslan et al. evaluated the prevalence of skin diseases in children and adolescents living in orphanages in Antakya [5].

Therefore, epidemiological data on childhood diseases are needed to establish appropriate health policies all over the world, especially in the developing countries.

Although there are many epidemiological studies on childhood skin diseases, each study on this subject is important to support the data and to identify the differences that may occur. In this retrospective study, we aimed to evaluate age, sex and seasonal differences of clinical diagnosis in children who admitted to dermatology clinic of a secondary health care center.

Materials and Methods

In this study, we retrospectively reviewed electronic records of patients under the age of 18 who were admitted to a state hospital dermatology outpatient clinic between January 1, 2015, and December 31, 2015. Clinical diagnosis, age, gender, and admitting dates of the patients were recorded into an electronic database. Ten clinical diagnostic groups were established from the identified diseases. Bolognia, Dermatology: 2-Volume Set, 3rd

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Edition was used for grouping of diagnoses. The diagnostic groups are listed in the Table 1.

Table 1. Clinical Diagnosis Groups.

Statistical Analysis

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) 15.0 software (SPSS Inc., Chicago, IL, United States). In descriptive analysis, percentage distributions were calculated for categorical variables, central tendency measures were used for continuous variables. The chi-square test was used in analytical assessments. P value <0,05 was considered as statistically significant.

Results

Descriptive Results

The mean age of participants was 13.51 ± 4.65 years. The patients were divided into groups according to their age range as 0-6 years (n=1542, 11.7%), 7-12 years (n=2536, 19.3%), and 13-18 years (n=9061, 69%). Of the participants, 7340 (55.9%) were female and 5799 (44.1%) were male. Of the children, 3746 (28.5%) were diagnosed in autumn, 3439 (26.2%) in winter, 3091 (23.5%) in

summer and 2863 (21.8%) in spring. The most common diseases are adnexal diseases in 4570 (34.8%) patients.

This was followed by infections-infestations (n=3057, 23.3%), papulosquamous and eczematous dermatoses (n=3009, 22.9%); hair, nail and mucous membrane disorders (n=760, 5.8%); pigmentation disorders (n=341, 2.6%), urticaria, erythema and purpura (n=284, 2.2%); pruritus (n=269, 2.0%); neoplasms of skin (n=227, 1.7%); disorders due to physical agents (n=176, 1.3%); disorders of keratinization (n=55, 0.4%), respectively. 391 patients (3.0%) had other diagnoses.

Analytical Results

Age and gender comparison of participants showed that among female patients 5144 (70.1%) were in the 13-18 years age group, 1434 (19.5%) were in the 7-12 years age group and 762 (10.4%) were in the 0-6 years age group. Among male patients 3917 (67.5%) were in the 13-18 years age group, 1102 (19.0%) were in the 7-12 years age group and 780 (13.5%) were in the 0-6 years age group. There was a statistically significant difference in the distribution of common diagnoses by age groups ($p = 0,03$) (Table 2). The most commonly observed disease in female patients was adnexal diseases in 2554 (34.8%) patients, this is followed by Papulosquamous and Eczematous Dermatoses in 1723 (23.5%) patients and infections and infestations in 1643 (22.4%) patients. Adnexal diseases observed in 2016 (34.8%) male patients were the most commonly observed disease in male patients, it is followed by infections, infestations in 1414 (24.4%) patients; Papulosquamous and Eczematous Dermatoses in 1286 (22.2%) patients. No statistically significant difference was found between the two groups for diagnosed diseases and gender ($p > 0.05$) (Table 3).

Table 2. Age group distribution of common diagnoses

| GROUPS OF DIAGNOSES | | AGE | | | TOTAL | |
|--|----------------|-------|-------|-------|--------|--------|
| | | 0-6 | 7-12 | 13-18 | | |
| Adnexal diseases | Number (n) | 25 | 92 | 4453 | 4570 | p=0,03 |
| | Percentage (%) | 0.5% | 2.0% | 97.4% | 100.0% | |
| Infections, infestations | Number (n) | 489 | 917 | 1651 | 3057 | |
| | Percentage (%) | 16.0% | 30.0% | 54.0% | 100.0% | |
| Papulosquamous and eczematous dermatoses | Number (n) | 684 | 904 | 1421 | 3009 | |
| | Percentage (%) | 22.7% | 30.0% | 47.2% | 100.0% | |
| Hair, nail and mucous membrane diseases | Number (n) | 87 | 153 | 520 | 760 | |
| | Percentage (%) | 11.4% | 20.1% | 68.4% | 100.0% | |
| Pigmentation disorders | Number (n) | 53 | 131 | 157 | 341 | |
| | Percentage (%) | 15.5% | 38.4% | 46.0% | 100.0% | |
| Urticarias, erythemas and purpuras | Number (n) | 45 | 73 | 166 | 284 | |
| | Percentage (%) | 15.8% | 25.7% | 58.5% | 100.0% | |
| Pruritus | Number (n) | 42 | 76 | 151 | 269 | |
| | Percentage (%) | 15.6% | 28.3% | 56.1% | 100.0% | |
| Neoplasms of the skin | Number (n) | 46 | 58 | 123 | 227 | |
| | Percentage (%) | 20.3% | 25.6% | 54.2% | 100.0% | |
| Disorders due to physical agents | Number (n) | 22 | 53 | 101 | 176 | |
| | Percentage (%) | 12.5% | 30.1% | 57.4% | 100.0% | |
| Disorders of keratinization | Number (n) | 2 | 15 | 38 | 55 | |
| | Percentage (%) | 3.6% | 27.3% | 69.1% | 100.0% | |
| TOTAL | Number (n) | 1542 | 2536 | 9061 | 13139 | |
| | Percentage (%) | 11.7% | 19.3% | 69.0% | 100.0% | |

Table 3. Gender distribution of common diagnoses

| DIAGNOSIS | | GENDER | | TOTAL | |
|---|----------------|--------|------|-------|----------|
| | | FEMALE | MALE | | |
| Adnexal diseases | Number (n) | 2554 | 2016 | 4570 | |
| | Percentage (%) | 34.8 | 34.8 | 34.8 | |
| Infections, infestations | Number (n) | 1643 | 1414 | 3057 | p > 0.05 |
| | Percentage (%) | 22.4 | 24.4 | 23.3 | |
| Papulosquamous and eczematous dermatoses | Number (n) | 1723 | 1286 | 3009 | |
| | Percentage (%) | 23.5 | 22.2 | 22.9 | |
| Hair, nail and mucous membrane diseases | Number (n) | 434 | 326 | 760 | |
| | Percentage (%) | 5.9 | 5.6 | 5.8 | |
| Pigmentation disorders | Number (n) | 188 | 153 | 341 | |
| | Percentage (%) | 2.6 | 2.6 | 2.6 | |
| Urticarias, erythemas and purpuras | Number (n) | 156 | 128 | 284 | |
| | Percentage (%) | 2.1 | 2.2 | 2.2 | |
| Pruritus | Number (n) | 155 | 114 | 269 | |
| | Percentage (%) | 2.1 | 2.0 | 2.0 | |
| Neoplasms of the skin | Number (n) | 123 | 104 | 227 | |
| | Percentage (%) | 1.7 | 1.8 | 1.7 | |
| Disorders due to physical agents | Number (n) | 93 | 83 | 176 | |
| | Percentage (%) | 1.3 | 1.4 | 1.3 | |
| Disorders of keratinization | Number (n) | 27 | 28 | 55 | |
| | Percentage (%) | 0.4 | 0.5 | 0.4 | |
| Other diseases | Number (n) | 244 | 147 | 391 | |
| | Percentage (%) | 3.3 | 2.5 | 3.0 | |
| TOTAL | Number (n) | 7340 | 5799 | 13139 | |
| | Percentage (%) | 100 | 100 | 100 | |

Discussion

The incidence and distribution of dermatological diseases vary from country to country [2,3]. There are many epidemiological studies about the dermatological diseases encountered during childhood period. In one of the important studies on this topic, Nanda et al. prospectively evaluated 10,000 children and identified 162 dermatological diseases. The three most frequently identified diseases were atopic dermatitis (31.3%), verrucae (13%), and alopecia areata (6.2%) [6]. In another study, Hayden prospectively evaluated 1547 children who admitted to the Hayden pediatrics outpatient clinic and classified detected diseases in 9 groups and found dermatological infections (36%), Diaper Dermatitis (16%) and Atopic Dermatitis (9%) as the first three most common dermatological diseases [7]. In Switzerland, Wenk et al. prospectively evaluated a total of 1105 children, less than 16 years, and found that atopic dermatitis (25.9%) was the most frequent diagnosis, followed by pigmented nevi (9.1%) and warts (5.0%) [8]. In a study conducted in our country, Özcan et al. evaluated dermatological diseases in 0-6 years old patients who admitted to primary health centers and found most commonly eczema/dermatitis (30.5%), followed by Fungal Infectious Diseases (16.9%), Bacterial Infections (13.9%) and acne vulgaris (8.23%) [9].

In our study, we grouped childhood skin diseases into 10 groups. The first 3 most common disease groups comprised

97% of all diseases. These were adnexal diseases (34.8%); infections, infestations (23.3%), Papulosquamous and Eczematous Dermatoses (22.9%); Hair, Nail and Mucous Membrane Diseases (5.8%); Pigmentation Disorders (2.6%); Urticaria, Erythema and Purpura (2.2%); and Pruritus (2%).

The most common disease groups according to age groups were as follows: Papulosquamous and eczematous dermatoses in 0-6 years, Infections and infestations in 7-12 years, adnexal diseases in 13-18 years age group.

In our country, dermatitis (17.9% - 26%) has been reported to be the most common childhood skin disease in previous studies [10,18]. In our study, the most common skin diseases group were adnexal diseases, in which the most commonly seen disease was acneiform dermatoses (33.8%). Gül and his colleagues identified infectious diseases as the most common disease in their research [11]. However, infections, infestations were the second most common cause in our study. Acneiform lesions commonly occur in adolescence and appear earlier in females because of hormonal effects [12].

In our country, the incidence of acne vulgaris in the age group of 13-16 years was found as 11.8% - 25.2% [10,13,14,18]. Larsson and Liden [15] reported that acne vulgaris was the most commonly observed disease in 36.5% of the same age group.

In our study, we found the incidence of acneiform lesions as 33.8%. There was no significant difference between males and females ($p > 0.05$). The incidence was 33.8% in both females and males.

The most comprehensive retrospective study of pediatric dermatological diseases was conducted by Sardana et al., with 30,078 children between 0-12 years, in India. In this study, Skin infections and infestations, accounting for 47.15% of patients, were found to be the most common dermatologic diseases, [16]. Saçar et al. reported infectious skin diseases as second most common disease group (20.6%) after eczema [17].

Although the results of our study have some similarities with other studies in our country, there are also differences. The number of cases, the living conditions of the patients, the living in different regions of our country, socioeconomic status can affect the results of studies. The fact that our work is carried out in a reference hospital in a large province which can represent the whole country and because of a large number of cases, this study can give an idea about the skin diseases of children in our country.

We believe that the frequency and severity of children's skin diseases can be reduced by establishing appropriate preventive health policies and dissemination of educational programs, and it will be useful to organise training programs on common pediatric skin diseases, especially to primary care physicians.

This study was approved by Eskisehir Osmangazi University Medical Faculty Clinical Research Ethics Committee.

Kaynaklar

- Williams HC. Epidemiology of skin diseases. In: Champion RH, Burton JL, Burns DA, Breatnach SM, eds. Textbook of dermatology, 6th ed. Oxford: Blackwell Science; 1998;139-58.
- Uksal U. Today and future in pediatric dermatology. *Turkderm*. 2008;42(1):1-2.
- Turkish statistical institute address based population registration system database population by age group and sex –2016. Available from www.tuik.gov.tr access date 18.03.2016
- İnanır I, Sahin MT, Gündüz K, Dinç G, Türel A, Öztürkcan S. Prevalence of skin conditions in primary school children in Turkey: Differences based on socioeconomic factors. *Pediatr Dermatol*. 2002;19(4):307-11.
- Serarslan G, Savas N. Prevalence of skin diseases among children and adolescents living in an orphanage in Antakya, Turkey. *Pediatr Dermatol*. 2005;22(5):490-2.
- Nanda A, Al-Hasawi F, Alsaleh QA. A prospective survey of pediatric dermatology clinic patients in Kuwait: an analysis of 10,000 cases. *Pediatr Dermatol*. 1999;16(1):6-11.
- Hayden GF. Skin diseases encountered in a pediatric clinic. A one-year prospective study. *Am J Dis Child*. 1985;139(1):36-8.
- Wenk C, Itin PH. Epidemiology of pediatric dermatology and allergology in the region of Aargau, Switzerland. *Pediatr Dermatol*. 2003;20(6):482-7.
- Özcan A, Seral M, Bayram N. The evaluation of dermatological diseases in primary health care centers. *T Klin J Dermatol*. 2005;15(3):129-35.
- Oruk Ş, İter N, Atahan CA, Güner MA. Dermatological problems in children. *T Klin J Dermatol*. 2002;12(1):1-4.
- Gül Ü, Çakmak SK, Gönül M, Kılıç A, Bilgili S. Pediatric skin disorders encountered in a dermatology outpatient clinic in Turkey. *Pediatr Dermatol*. 2008;25(2):277-8.
- Sanfilippo AM, Barrio V, Shorten CK, Callen JP. Common pediatric and adolescent skin conditions. *J Ped Adol Gynecol*. 2003;16(5):269-83.
- Tamer E, İlhan MN, Polat M, Lenk N, Alli N. Prevalence of skin diseases among pediatric patients in Turkey. *J Dermatol*. 2008;35(7):413-8.
- Prendiville JS. Scabies and Lice. Harper J, Orange A, Prose N. Textbook of Pediatric Dermatology, 2th edition. Italy, Blackwell Publishing. 2006: 659-73.
- Larsson PA, Liden S. Prevalence of skin diseases among adolescents 12-16 years of age. *Acta Derm Venereol*. 1980 ;60(5):415-23.
- Sardana K, Mahajan S, Sarkar R, Mendiratta V, Bhushan P, Koranne RV, Garg VK. The spectrum of skin disease among Indian. *Pediatr Dermatol*. 2009;26(1):6-13.
- Saçar H, Saçar T. Prevalence of dermatosis during childhood. *Turkderm*. 2010;44(3):132-7.
- Kayhan M, Kayhan S, Unluoglu İ Bilge U Assessment of clinical diagnosis, age and gender differences of elderly patients applying to dermatology clinic of a secondary health institute in family medicine aspect. *Biomedical Research*. 2017;28(2):630-3.