Araştırma Makalesi / Research Article

The retrospective evaluation of clinical and demographic features of children with psoriasis

Psoriasisli çocuk hastaların klinik ve demografik özelliklerinin retrospektif olarak değerlendirilmesi

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Abstract

Background: Psoriasis is an immune-mediated inflammatory dermatosis and constitutes 4% of the pediatric dermatosises. In our study, evaluation of the clinical and demographic characteristics of children with psoriasis has been aimed.
Methods: 70 children with psoriasis were included to the study. Parameters such as age, gender, disease, age of onset, joint or nail involvement, clinical type, distribution of lesions, severity of the disease, family history, accompanying disease, received/receiving treatments, smoking habits and body mass index were recorded. The data were statistically analyzed.
Results: 36 of the patients were girls (51.4%) and girl/boy ratio was: 1.058/1. Average age of onset was 8.01±4.56. The most frequent age of onset was 0-5 (%34.28). 31.40% of the patients had family history, 8.57% of them had accompanying disease, 10% of them had joint involvement, 18.57% of them had nail involvement and 8.57% of them were smoking. The most frequent clinical type was plaque type (68.57%), the most frequent parts that the disease was observed were hairy skin/face areas (74.28%), and the most frequently used systemic agent was methotrexate (18.57%).
Conclusion: Our results were mostly compatible with previous study results. In literature, the amounts of studies that evaluate the clinic and sociodemographic characteristics of the children with psoriasis are few and data are quite variational.

Keywords: Psoriasis, Child, Demography, Retrospective study.

Öz.

Amaç: Psoriasis immün aracılı inflamatuar bir dermatoz olup, pediatrik dermatozların %4'ünü oluşturur. Çalışmamızda, psoriasisli çocuklarda klinik ve demografik özelliklerin değerlendirilmesi amaçlanmıştır.
Materyal ve Metot: Çalışmaya, 70 psoriasisli çocuk hasta alındı. Yaş, cinsiyet, hastalık başlangıç yaşı, eklem veya tırnak tutulumu, klinik tip, lezyon dağılımı, hastalık şiddeti, aile öyküsü, eşlik eden hastalık, alınmış/alınmakta olan tedaviler, sigara kullanımıyla beden kitle indeksi parametreleri kaydedildi. Veriler istatistiksel olarak analiz edildi.
Bulgular: Hastaların 36'sı kız (%51.4), 34'ü erkekti (%48.5). Kız/erkek oranı 1.058/1 idi. Ortalama başlangıç yaşı 8.01±4.56 idi. En sık başlangıç yaş aralığı 0-5 idi (%34,28). Aile öyküsü %31.40'ünde, eşlik eden hastalık %8.57'sinde, eklem tutulumu %10'unda, tırnak tutulumu %18.57'sinde ve sigara kullanımı %8.57'sinde mevcuttu. En sık klinik tip plak tip (%68.57), en sık yerleşim yeri saçlı deri/yüz bölgesi (%74.28) ve en sık kullanılan sistemik ajan metotreksat idi (%18.57).
Sonuç: Sonuçlarımız, önceki çalışma sonuçlarıyla çoğunlukla uyumluydu. Klinik tipler sırasıyla plak, guttat, palmoplantar ve püstüler olup, hiçbir hastada eritrodermik forma rastlanmadı. Kız hastalarda palmoplantar tutulum gözlenmedi. Hastaların %45.71'inde hafif, %24.28'inde orta şiddetli ve %30'unda şiddetli psoriasis mevcuttu. İki hastada vitiligo mevcuttu.
Literatürde çocukluk çağı psoriasis hastalarının klinik ve sosyodemografik özelliklerini değerlendiren çalışma sayısı az olup, veriler oldukça değişkendir. Çalışma sonuçlarımızı daha iyi değerlendirebilmek için, ileri çalışmalara ihtiyaç olduğu kanaatindeyiz.

Anahtar kelimeler: Psoriasis, Çocuk, Demografi, Retrospektif çalışma.

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Introduction

Psoriasis is a chronically inflammatory skin disease that also affects joints and nails, characterized with sharply circumscribed papule or plaques with erythema and/or squama. Its etiopathogenesis is not known fully (1). Psoriasis constitutes the 4% of the childhood dermatosises and observed in our country with the ratio of 2.5-3.8%. The 30% of the adults with psoriasis have stated that their disease started before 20-year-old (2).

Etiopathogenesis of psoriasis has been drastically changed in recent years. Before it was thought that the disease was an epidermal differentiation disorder with keratinocyte hyperproliferation. However, nowadays it has been accepted that the reaction develops as epidermal hyperplasia as a result of activation of immune system in focal skin areas (3). Environmental factors affect the pathogenesis and some environmental factors such as climate, smoking, stress, trauma, medications, and infections triggers the initiation of the disease (4).

Plaque, guttate, pustules, palmoplantar, erythrodermic, inverse, diaper, nail and oral/mucosal psoriasis variations are seen at childhood psoriasis. Unlike adulthood psoriasis, peritonsillar abscess, trauma and stress are more common triggers for pediatric psoriasis. In order to distinguish psoriasis from other childhood papulosquamous disorders such as lichen planopilaris, psoriasiform ID reactions, nummular dermatitis, pityriasis rosea and pityriasis rubra pilaris, skin biopsy shall be helpful. For the phenomenon limited with the skin, topical treatments shall be used for first option. For severe and treatment-resistant phenomenon phototherapy and systemic treatments are other options (5).

In our country, studies regarding clinical and sociodemographic characteristic of the patients with psoriasis mostly focus on adulthood psoriasis. Few studies have been conducted regarding the clinical and sociodemographic characteristic of the pediatric patients with psoriasis (6, 7). In our study, it was aimed to evaluate the clinical and sociodemographic characteristics of children with psoriasis who applied to our clinic.

Materials and Methods

70 pediatric patients who clinically or histopathologically diagnosed with psoriasis and who applied to our clinic at the dates between 1st of January 2017 and 1st of January 2018 were included to the study. Parameters such as age, gender, disease, age of onset, joint or nail involvement, clinical type, distribution of lesions (scalp/face, body/extremity, inverse, palmoplantar), severity of the disease, family history, accompanying disease, received/receiving treatments, smoking habits and body mass index were recorded. An approval of ethics committee of our hospital was obtained and informed consent forms from the patients were received.

Windows-compliant IBM SPSS 23.0 (Chicago, USA) package program was used for statistical analysis. Categorical data were evaluated with Pearson chi-squared test. Continuous data were calculated as mean ± standard deviation (SD) and categorical data were calculated as frequency (%). $P< 0.05$ was accepted as significant.

Results

36 of the patients involved in the study were girls and 34 of them were boys (G/B: 1.058/1). The age average of girls was 11.2±4.7, and age average of boys was 10.7±5.4. Age average of all patients was 10.95±5.03. There was no statistically significant difference between two genders in terms of age ($p> 0.05$) (Table 1).

The average age of onset was 8.27±4.17 for girls and it was 7.73±4.99 for boys, and the average age of onset of all patients was 8.01±4.56. There was no statistically significant difference between two genders in terms of age of onset ($p> 0.05$) (Table 1).

The average body mass index of girls was 18.97±3.95 and it was 21.16±5.00 for boys, the average body mass index of all patients was 20.03±4.59. There was a statistically significant difference between two genders in terms of BMI ($p<0.05$) (Table 1).

An accompanying disease was observed for four boys and two girls (8.57% of the patients). These diseases were HBsAg positive (1 patient), single kidney existence (1 patient), coeliac disease (1 patient), pyloric stenosis (1 patient) and vitiligo (2 patients) (Table 2).

Family history (first degree relative) was positive for 31.4% of patients (14 girls, 8 boys) (Table 2).

Smoking ratio was 8.57% (5 boys, 1 girl), joint involvement ratio was 10% (5 girls, 2 boys), and nail involvement ratio was 18.57% (8 boys, 5 girls) (Table 2).

In terms of severity of the disease, 45.71% of the patients had mild form (17 girls, 15 boys), 24.28% of the patients have medium form (10 girls, 7 boys) and 30% of the patients had severe form (9 girls, 12 boys) (Table 2).

The distribution ratio of clinical types of the patients was as follows: 65.7% plaque (26 girls, 22 boys), 21.4% guttate (9 girls, 6 boys), 1.42% pustular (1 boy), and 8.57% palmoplantar (1 girl, 5 boys). Erythrodermic form was not encountered with any patient (Table 2).

Lesion distributions of the patients were as follows: 75.71% of them had scalp/face involvement (31 girls, 22 boys), 64.28% of them had body/extremity involvement (22 girls, 23 boys), 51.42% of them had inverse involvement (18 girls, 18 boys) and 5.71% of them had palmoplantar involvement (4 boys). 13 of the patients had only scalp involvement, 7 of them had only body/extremity involvement, 4 of them had only inverse involvement and 3 of them had only palmoplantar involvement. None of the patients had the involvement of all parts. Palmoplantar involvement was not observed in girl patients (Table 2).

When evaluated in terms of treatments, all patients except the ones who applied any medical institution for the first time, received a topical treatment for a particular period or they were still receiving such a treatment. 14.28% of the patients (7 girls, 3 boys) had received or were receiving phototherapy at one period of their life, 12.85% of them had used/were using acitretin (2 girls, 7 boys), 1.42% of them had used/were using cyclosporine (1 boy), 18.57% of them had used/were using methotrexate (5 girls, 8 boys), and 2.85% of them had used/were using biological agents (2 boys) (Table 2).

Table 1. Age, onset age and BMI of patients (mean ± standard deviation)

	Girl	Boy	*p*
Age	11.2±4.7	10.7±5.4	0.688
Age of onset	8.27±4.17	7.73±4.99	0.623
BMI	18.97±3.95	21.16±5.00	0.046

BMI: Body mass index

Discussion

Psoriasis is an immune-mediated inflammatory dermatosis. It has been thought that this disease is affecting 2 or 3.5% of the world population (8). Psoriasis constitutes 4% of the childhood dermatosises (2). It starts during the childhood period for almost 1 in 3 children (8). This disease starts before 10-year-old for 10% of the patients and before 2-year-old for 2% of the patients (9). As a result of the study conducted in India with 419 patients, it has been found that the age of onset was between 4 days to 14-year-old. This study also revealed that the age of onset for boys was 8.1±2.1 (mostly between 6-10 year-old), and for girls it was 9.3±2.3 (mostly between 10-14 year-old) (10). Again, another study conducted in Australia with 1262 pediatric patients revealed that the age range was 1 month to 15 years. 27.3% of the patients were younger than 2-year-old (11). As a result of the study conducted by Karadağ et.al. with 64 pediatric psoriasis patients, the age range was found as 3 and 16 years and the average was 10.08±3.98. This study revealed that the age of onset for girls was 4-12 years and 3-14 years for boys (4). In our study, the age average for girls was 11.2±4.7, 10.7±5.4 for boys and the age average of all patients was 10.95±5.03. The age range was detected as 1-17 years. The average age of onset was 8.27±4.17 for girls (1-16 years) and it was 7.73±4.99 for boys (1-17), and the average age of onset of all patients was 8.01±4.56. 12 patients were between zero-5 years (7 boys, 5 girls), 22 patients were between 6-10 years (10 boys, 12 girls), and 36 patients were between 11-17 years (18 boys, 18 girls). The age of onset of 24 patients was between 0-5 years (8 girls, 16 boys), the age of onset of 23 patients was between 6-10 years (7 boys, 16 girls) and the age of onset of 23 patients was between 11-17 years (11 boys, 12 girls).

Table 2. Distribution of the parameters according to gender.

	Girl (n)	Boy (n)	Total (n/%)	
Family history	14	8	22	31.4
Accompanying disease	2	4	6	8.57
Joint involvement	5	2	7	10
Nail involvement	5	8	13	18.57
Smoking	1	5	6	8.57
Clinical type				
Plaque	26	22	48	65.7
Guttate	9	6	15	21.4
Pustules	0	1	1	1.42
Erythrodermic	0	0	0	0
Palmoplantar	1	5	6	8.57
Distribution of lesions				
Scalp/face	31	22	53	75.71
Body/extremity	22	23	45	64.28
Inverse	18	18	36	51.42
Palmoplantar	0	4	4	5.71
Severity of the disease,				
Mild	17	15	32	45.71
Medium	10	7	17	24.28
Severe	9	12	21	30
Treatment				
Phototherapy	7	3	10	14.28
Acitretin	2	7	9	12.85
Methotrexate	5	8	13	18.57
Cyclosporine	0	1	1	1.42
Biological agents	0	2	2	2.85

Unlike adulthood psoriasis, pediatric psoriasis is seen in girls more frequently than boys (9). The girl/boy ratios of the results of the studies conducted in our country were as follows: 1/1.4 (Karadağ et al.) (4), 1.5/1 (12) (Özden et al.), 1.7/1 (Seyahn et al.) (7). As a result of the study conducted in India, this ratio was found as 1/1.09 (10). In our study, the girl/boy ratio was 1.058/1.

The effects of environmental and genetic factors on pathogenesis of psoriasis have been known for a long time. The risk is 10% if only parent has psoriasis but it is 50% if both

parents have psoriasis (2). As a result of the study conducted by Kumar et al. With 419 patients, the family history ratio was found as 4.5% (10). Another study conducted in Australia with 1262 patients revealed this ratio as 71% (11). A study conducted by Karadağ et al. in our country resulted in 10% family history ratio (4). In our study, the positive family history ratio was 31.4%.

A study conducted in Germany with 33.981 patients revealed that the comorbidity rate for patients younger than 20-year old increased 2 times more than the patients without psoriasis and it was reported that the pediatric psoriasis was related with increased hyperlipidemia, obesity, hypertension, diabetes mellitus, rheumatoid arthritis and Crohn disease (13). Psoriasis is one of the more than 80 defined autoimmune diseases. For many patients with psoriasis other autoimmune diseases such as morfea and vitiligo are also accompanying (5). Karadağ et al. Stated that the comorbidity was no encountered during their study but hypothyroid (in 2 patients) and atopic dermatitis (in 3 patients) were observed (4). In our study, we did not observed accompanying comorbidity. The accompanying diseases observed during our study were HBsAg positive (1 patient), single kidney existence (1 patient), coeliac disease (1 patient), pyloric stenosis (1 patient) and vitiligo (2 patients).

Smoking increases the cytokine levels that play a part in pathogenesis of psoriasis (14). A study regarding the effects of smoking on pediatric psoriasis showed that exposure to tobacco smoke triggers psoriasis (12). In our study smoking ratio was 8.57% (5 boys, 1 girl). 3 boys and 1 girl who smoke cigarette had severe, 2 smoking boys had mild psoriasis.

It has been reported that the joint involvement ratio is 5-7% in psoriasis (15). Joint involvement is observed among young patients less, however it comes to existence during childhood period (5). During a study conducted in India with 419 patients, joint involvement ratio was observed as 1.1% (10). In our study, the joint involvement ratio was 10% with patients who had medium level psoriasis (5 girls, 2 boys). The clinical types among these patients were plaque (4 patients) and guttate (3 patients). Only for one patient, nail involvement was also accompanying.

Nail psoriasis is seen 7-40% of children (16). It has been reported that arthropathic psoriasis patients has 80% more nail involvement (17). The study conducted in India revealed that 31% of the patients had nail involvement (10). As a result of the study conducted with pediatric patients in our country by Karadağ et al., nail involvement ratio was stated as 9% (4). In our study the nail involvement ratio was 18.57% (8 boys, 5 girls). The clinical types among these patients were plaque (9 patients), guttate (2 patients) and palmoplantar (2 patients). For 4 of these patients psoriasis was severe, for 7 of them psoriasis was mild and for 3 of them psoriasis was medium. Only for one patient, joint involvement was also accompanying.

The most frequent type among children with psoriasis is plaque (68.8%). Guttate type is more common among pediatric patients than adult patients. At the study conducted in China, it was observed 28.9% of 277 pediatric patients. Gland region involvement is more common among children. Erythrodermic type is seen 1.4% and palmoplantar pustular type is 1.1% (5). The most frequent clinical type was detected as plaque (60.6%) and then plantar type as a result of the study conducted in India with 419 patients (12.5%) (10). The most frequent clinical type was detected as plaque as a result of the study conducted in Australia with 1262 patients (34%) (11). As a result of the study conducted by Karadağ et al. with 64 pediatric patients, the clinical type ratios were detected as follows respectively: plaque (68.8%), guttate (20.3%), palmoplantar (9.4%) and pustular (6%) (4). In our study the distribution of clinical type ratios were as follows: 65.7% plaque, 21.4% guttate, 1.42% pustular and 8.57% palmoplantar. Erythrodermic form was not observed among any of the patients.

Severity grading for psoriasis is based on body surface area. Therefore, less than 3% involvement in body surface area means mild severity, 3-10% involvement means medium severity and more than 10% involvement means severe psoriasis (5). In our study we evaluated severity of the disease by using body surface area and we detected mild form psoriasis among 45.71% of the patients, medium form among 24.28% of them and severe form of psoriasis among 30% of the patients.

40% scalp involvement is observed at pediatric psoriasis. 207 pediatric patients from Europe and Asia were compared and the most frequent involvement observed in both groups was scalp involvement and then leg involvement. A study conducted in China revealed that the most frequently involved areas are (respectively) leg extensors (65.5%), arms (51.4%) and scalp areas (46.5%) (4). A study conducted in our country showed that involvement mostly observed in (respectively) body (44.3%), extremities (54%) and scalp area (36%) (7). Body (46.9%), scalp area (28.1%), knees and elbows (10.9%), extremities (7.9%) and palmoplantar areas were reported as the most frequent starter areas as a result of the study conducted by Karadağ et al (4). In our study, we observed scalp/face involvement in 75.71% of the patients, body/extremity involvement in 64.28% of the patients, inverse involvement in 51.42% of the patients and palmoplantar involvement in 5.71% of the patients. 13 of the patients only had scalp involvement, 7 of them had only body/extremity involvement, 4 of them had only inverse involvement and 3 of them had only palmoplantar area involvement. None of the patients had involvement of all areas at the same time. Palmoplantar involvement was not observed in girls.

For the majority of pediatric patients topical treatment is enough in order to control the disease. The first option for topical treatment is topical steroids. Severe phenomenon

may cause psychosocial disorders; therefore systemic treatment is necessary for such cases. Applying phototherapy to the patients below 12-year-old has not been approved. For pediatric psoriasis patients, there are few amount of clinical studies regarding the treatments with biological agents such as acitretin, methotrexate, cyclosporine etc. and these are generally limited with phenomenon notifications. Even though reservations still exist regarding acitretin because of its side effects, acitretin is a second-level treatment option for the kids with severe psoriasis. It has been recommended not to use cyclosporine in children but to use with patients who have highly severe psoriasis and are resistant to other agents. On the other hand, methotrexate has been used for juvenile rheumatoid arthritis and some autoimmune diseases for years and it is an allowable agent. Phenomenon notifications are available regarding its use in resistant plaque psoriasis, pustular and erythrodermic psoriasis (2). It has been stated that methotrexate can be used as the first option among other systemic agents (4). Biological agents should be considered for the very severe cases and when the traditional treatments are not successful (2). Topical treatments were applied as a first option for all patients during the study conducted by Karadağ et al. with 64 pediatric patients. Systemic treatment was applied for 14 patients. Eight patients received phototherapy, one patient was given methotrexate, two patients were given cyclosporine and three patients were given acitretin (4). In our study, all patients except the ones who applied any medical institution for the first time, received a topical treatment for a particular period or they were still receiving such a treatment. 14.28% of the patients had received or were receiving phototherapy at one period of their life, 12.85% of them had used/were using acitretin, 1.42% of them had used/were using cyclosporine, 18.57% of them had used/were using methotrexate, and 2.85% of them had used/were using biological agents.

Conclusion

In conclusion, both in our country and around the world studies regarding psoriasis are mostly related with adulthood psoriasis. There is limited number of studies regarding pediatric psoriasis. Especially, the amounts of studies that evaluate the clinic and sociodemographic characteristics of the children with psoriasis are few and data are quite variational. We believe that the studies conducted with more pediatric patients shall play a vital role in diagnosis and treatment of this disease, plus it will be beneficial for determining the measurements for better treatment.

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