

Study on children psoriasis in Latvia

S. Sigure and A. Rubins

ABSTRACT

Objective. The aim of the study was to evaluate psoriasis morbidity among children in Latvia.

Materials and methods. 252 psoriatic children, 3 to 18 years old children, were surveyed using a questionnaire developed for this study. Data on the course of the disease, skin involvement and further clinical symptoms and signs were registered. They were evaluated using PASI system. Data were analyzed using the computerized programs (MS Excel 98 and SPSS). 149 girls (59 %) and 103 boys (41 %) were included in the study, the patients originated from different regions of Latvia.

Results. Children aged 11 to 15 years suffered from psoriasis (46%) most frequently.

Psycho-emotional stress 198 (79%), viral and bacterial infections 119 (47%) were the most frequent promoting factors. In 26% of patients a family history of psoriasis was noted. Psoriasis vulgaris was diagnosed in 57 % of patients, and psoriasis exsudativa in 27 %. Mean PASI index was 12.92.

Conclusion. Psoriasis seems to be quite frequent in children in Latvia.

KEY WORDS

children
psoriasis,
age, clinical
types,
precipitating
factors,
Latvia

Introduction

Psoriasis affects 1-3% of world's population. In the countries of Northern Europe the incidence of psoriasis is particularly high (1,2). It is a multifactorial disease. Pathogenetically it is related to the genetically determined keratinisation process, which manifests itself as hyperproliferation of epidermal keratinocytes and disturbed normal differentiation process of epidermal cells. In the early phase neutrophil leucocytes appear in epidermis and activated T lymphocytes in dermis (5,6). Factors precipitating psoriatic eruption include local trauma, infections (streptococcal, particularly in chil-

dren), stress, endocrine factors, drugs, radiation etc. (1,4,7,8,9). Psoriasis is divided into two types. Type I psoriasis, which is HLA Cw6 positive (around 65% of all psoriasis patients), begins in adolescence. Type II psoriasis, which is HLA Cw6 negative, develops later and is connected neither with HLA system nor family heredity.

H. Takematsu et al. described increased levels of HLA antigens B13, B17, B27, B37 etc. in psoriasis patients. It testifies the link between psoriasis and different HLA system proteins (3,7,10).

Table 1. Distribution of children by sex and age (n=252).

Age groups (years)	Boys	Girls	Total	%
3-5	6	3	9	3,57
6-10	23	29	52	20,6
11-15	49	68	117	46
16-18	25	49	74	29

Several authors have stressed that psoriasis is a rather frequent disease in Latvia.

Data from literature show that the medium age of psoriasis patients is between 10 and 30. However, disease can start at any age, even in infancy (2). Epidemiologic studies revealed that in 37 % of patients psoriasis appeared at the age of 20, in 27 % at the age of 15, in 10 % at the age of 10, in 6.5 % eruptions manifest before the age of five, and in 2% at the age of two (1). Psoriasis is equally distributed among adult male and female patients. Girls are affected more often than boys, the ratio being 2: 1 (1,4).

In Latvia the psoriasis morbidity among children younger than 18 has not been studied up to now.

The objectives of the present investigation were:

- 1) To find the prevalence of psoriasis among children and adolescents under 18 in Latvia;
- 2) To assess the most common precipitating factors;
- 3) To find out the most common clinical forms; and
- 4) To evaluate the extent and intensity of psoriatic lesions by PASI index.

Materials and methods

252 patients under the age of 18 were studied. The data were entered in specially designed questionnaires. It was devised according the internationally approved criteria, and it was adapted to the situation in Latvia. The following data were registered: age (18 years and less), gender, address, vaccination protocol, allergic reactions, prior infections, internal pathologies, family history of psoriasis and of other chronic skin conditions, and internal diseases. The data on factors precipitating psoriasis, age at which psoriasis was diagnosed, extent of skin lesions, clinical form, complications and treatment used were also collected.

The course of psoriasis, extent of lesions and intensity of clinical symptoms were evaluated using PASI system. Points 0 to 3 indicate a mild PASI, 3 to 15 - moderate and more than 15 - a severe PASI score.

Data were analyzed using MS Excel 98, SPSS computer programs.

Table 2. PASI index in children with psoriasis by age (n=252).

Age	N	Minimum	Maximum	Mean		Std.Statistic
				Statistic	Std. Error	
3	1	5,0	5,0	5,000		
4	1	12,0	12,0	12,000		
5	7	2,4	21,6	13,457	2,862	7,573
6	9	0,6	29,0	11,456	2,718	8,155
7	12	1,8	23,0	13,083	1,863	6,453
8	9	0,5	39,2	14,533	4,565	13,695
9	15	3,6	22,2	10,467	1,345	5,209
10	7	9,4	18,6	14,929	1,241	3,283
11	21	6,0	24,5	14,329	,981	4,498
12	19	0,5	26,0	12,974	1,787	7,790
13	20	0,5	32,6	15,055	2,162	9,671
14	33	0,5	23,4	12,588	1,244	7,144
15	24	0,5	34,8	11,079	1,833	8,981
16	34	0,6	37,0	14,244	1,352	7,883
17	21	0,5	22,0	11,429	1,296	5,938
18	19	0,5	24,7	12,579	1,414	6,166
Total	252					

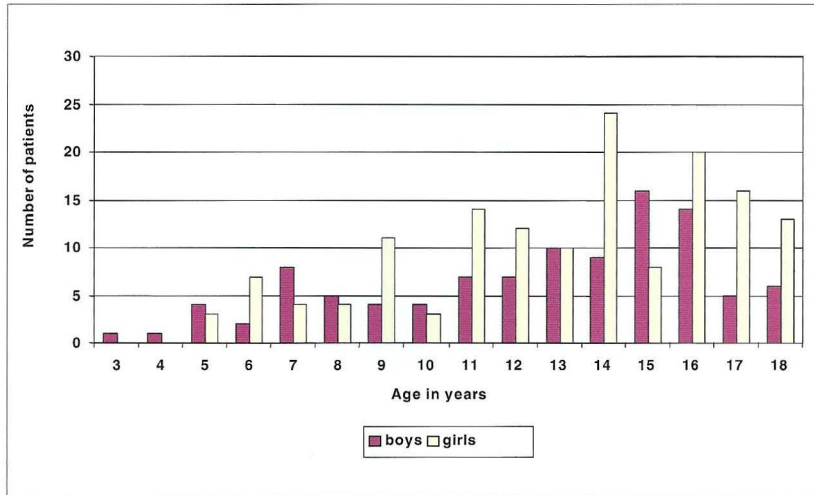


Figure 1. Distribution of children by age (n=252).

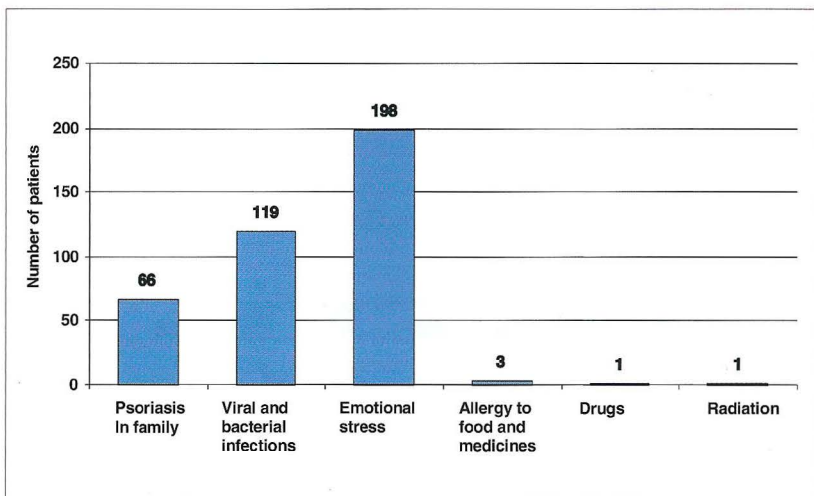
Results

The total number of 252 patients were studied and interviewed. Out of these, 103 (40.87%) were boys, 149 (59.13%) were girls. Girls were more often affected with psoriasis, particularly at the age of 14 to 17; boys were more often affected between 13 to 16 years.

Distribution of children by age group and gender are summarized in Figure 1.

The studied children were divided in 4 groups by gender and age (Table 1.). There were 9 patients (3.6%) under five years, 52 (20.6%) between six to ten years, 117 (46%) between 11 to 15, and 74 (29%) in the age

Figure 2. Psoriasis precipitating factors among children under age of 18 (n=252).



group 16 to 18 years. The majority of children were in age group 11 to 15 years (46%).

The most common precipitating factors found in children in this study were (Figure 2): psycho-emotional stress 198 (78.57%), viral and bacterial infections 119 (47.2%). Evidence of psoriasis in family members was found in 66 (26%) of patients. Out of them 40 (60.6%) inherited the disorder from fathers' side, 21 (31.8%) from mothers' side, 4 (6.1%) from both parents. Psoriasis in siblings was found in five instances - (7.6%) children. Some patients had several precipitating factors.

The following clinical forms of psoriasis were observed: psoriasis vulgaris in 143 (56.75%) patients, psoriasis exsudativa in 67 (26.59%), psoriasis pustulosa in 6 (2.4%), psoriasis guttata in 28 (11.1%), psoriasis inversa in 4 (1.6%), psoriatic erythroderma in 4 (1.6%) patients, while three of them also had arthritis. Damage of the nails was noted in 3 (2.9%) male patients (Figure 3).

As it is shown in Figure 4, psoriasis in children exacerbates more often during winter. The exacerbation in winter was observed in 82 girls and 74 boys, while in summer the exacerbation was noted in 27 girls and 13 boys, mixed form in 40 girls and 16 boys.

Among the studied psoriasis patients, 138 girls and 90 boys had psoriatic eruptions on the face and on scalp. In this study, evaluation of course of disease, the extent of psoriatic damage, and intensity of clinical symptoms (erythema, scaling, and infiltration) were done using PASI scale. Mean PASI score for all 252 studied patients was 12.92 (standard error ± 0.47, SD 7.48, dispersion amplitude 38.7, minimum 0.5, max 39.2). PASI in psoriasis affected children by age groups is summarized in Table 2.

The following co-morbidity was found in the studied patients: 14 (5.55%) neurological ailments, including organic damage of central nervous system in three and epilepsy in one, nocturnal enuresis in seven, and eight (3.17%) with gastro-duodenitis (Figure 5).

Discussion

Analysis of data by age revealed, that the age group 11 to 15 is most often affected. Girls are affected twice as often as boys in all age groups. Similar data have been shown in studies performed in other countries (1). A study performed at the Stanford University Medical School (4), which included 5,600 patients and the Norwegian Psoriasis study (11) showed, that girls are more often affected by psoriasis than boys by the ratio of 2:1.

Analysis by age showed that girls are most often affected at the age of 14 to 17, and boys at the age of 13

to16.

Similar data about importance of stress, psycho trauma, infection, particularly streptococcal, of this disease in children have been observed in other studies (1,11,12).

Some studies revealed heredity in up to 40% of children with psoriasis (13,14,16). In our study, heredity was found to be more often linked to the father's side. Similar conclusions were obtained in the Münster's Psoriasis study (15).

This study showed that the most common clinical form of childrens' psoriasis in Latvia is psoriasis vulgaris, followed by psoriasis exsudativa and guttata forms. Other studies (4,12) revealed that children most often suffer from psoriasis vulgaris, which is followed by psoriasis guttata. In our as well as in other studies psoriatic erythroderma was rare (4,13).

Analysis by PASI scale showed similar pattern in different age groups, which means that psoriasis in children in Latvia affects large areas of the body.

Co-morbidity was found in a few patients. The most frequent accompanying diseases were neurological (5.5%). Neurological impairments have been found more frequently among psoriatic patients in other studies (13).

Conclusions:

- Psoriasis most often affects children at the age of 11 to15 years,
- 26 % cases have family history of psoriasis,
- the most common clinical form is psoriasis vulgaris,
- the main psoriasis precipitating factor is psycho-emotional stress,
- psoriasis affected large areas as shown by PASI values, it was similar in all age groups.

Understanding of the extent of morbidity and predisposing factors at an early age could be helpful in preventing complications in later years and thus, improve the quality of life.

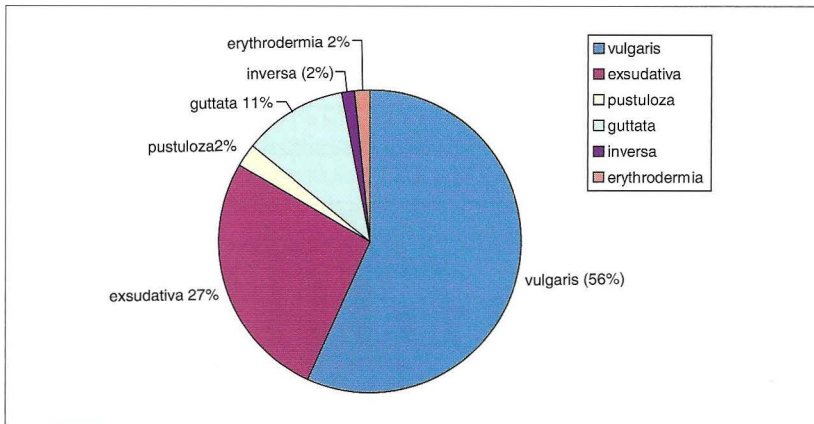


Figure 3. Clinical forms of psoriasis among children under age of 18 (n=252).

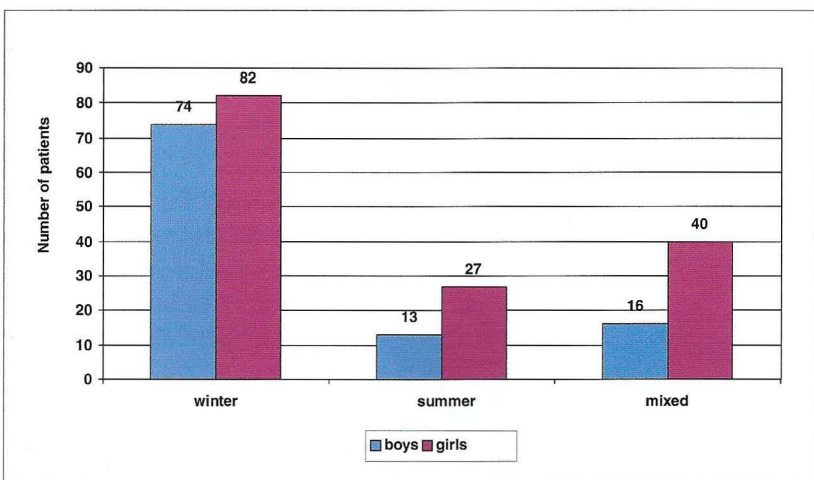
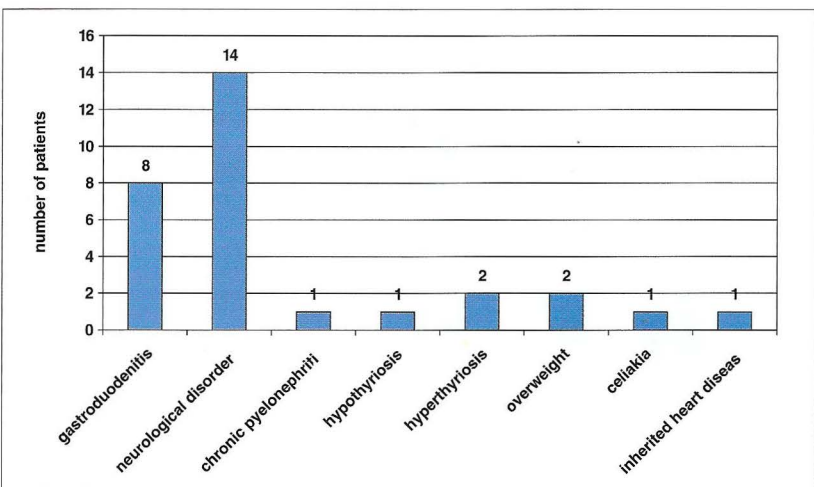


Figure 4. Distribution of psoriasis by seasons among children under age of 18 (n=252).

Figure 5. Co-morbidity among children (less than 18 years of age) with psoriasis (n=252).



REFERENCES

1. Hurwitz S. Childhood psoriasis. In: Hurwitz S. Clinical pediatric dermatology, 2nd ed USA, WB Saunders company, 1993; 105-6.
2. Landegren J, Mobacken H. Psoriasis and related conditions. A pictorial atlas clinical presentation and differential diagnosis, Skogs Boktryckeri AB, Trelleborg, 1995; 1-2.
3. Shegai M, Keshileva Z, Akishbaeva G. The role of certain cytokines in the development of psoriasis. Vestnik dermatologii i venerologii (Moskva), 1998; 5: 7-13.
4. Farber EM, Alto P, Nall L. Childhood psoriasis. *Cutis* .1999; 64 (5): 309-14.
5. Schlaak J, Buslau M, Jochum W, Hermann E, Girndt M, Gallati H. T cells involved in psoriasis vulgaris belong to the Th1 subset. *J invest Dermatol*, 1994; 102 (2): 145-8.
6. Capon F, Novelli G, Semprini S, Clementi M, Nudo N, Vultaggio P, Mazzanti 7. C, Gobello T, Botta A, Fabrizi G, Dallapiccola B. Searching for psoriasis susceptibility genes in Italy: genome scan and evidence for a new locus on chromosome 1. *J invest Dermatol* 1999; 112 (1): 32-5.
8. Kerkhof P. Pathogenesis. In: P Kerkhof Textbook of psoriasis. Oxford. Blackwell Science. 1999, 79-98.
9. Krogstad A. Neurogenic control of blood flow and antihistamine release in psoriatic skin. *Acta Dermatovenerol* 1999, 203, 7-14.
10. Nall L, Alto P, Gulliver W, Charmley P, Farber E. Search for the psoriasis susceptibility gene: the Newfoundland study. *Cutis* 1999; 64(5): 323-7.
11. Elder J, Henseler T, Christophers E, Voorhees J J, Nair R. Of genes and antigens: the inheritance of psoriasis. *J Invest Dermatol* 1994; 103(5): 150-3.
12. Nyfors A, Psoriasis in children. A follow up of 245 children under the age of 16 with psoriasis, *J Eur Acad Dermatol* 1997; 9 (1): S 011, 7
13. Barišić-Druško V, Dicić-Brkić A, Ružić I. Trigger factors in childhood psoriasis, *J Eur Acad Dermatol* 2000; 14 (1): P 19-23, 25.
14. Akyshbaeva G, Rybkina L, Utepova A. Clinical and immunological features of psoriasis in children. *J Eur Acad Dermatol* 1998; 11 (2): P451, 292.
15. Ferrandiz C, Pujol R, Patos V, Bordas X, Puig S, Smandia I. The clinical end epidemiological characteristics of psoriasis in Spain. *J Eur Acad Dermatol* 2000; 14 (1): P 19-01, 246.
16. Traupe H. The complex genetics. In: Kerkhof P. Textbook of psoriasis. Oxford. Blackwell Science Ltd 1999; 68-76.
17. Morris A, Rogers M, Fischer G, Williams K. Childhood Psoriasis: A Clinical Review of 1262 Cases. *Pediatric Dermatology* 2001; 18 (3): 188-98.

A U T H O R S ' A D D R E S S E S

Sanita Zigure, MD, Assistant Professor, Dept Dermatovenereology, Children Clinical Hospital, Venibas gatve 45, Riga LV 1050, Latvia
Andris Rubins MD, PhD, Professor and Head Dept of Dermatovenereology, Latvian Medical Academy, Dzirciema str. 16, Riga LV 1007, Latvia.