JCRMHS

Original Article

Journal of Clinical Case Reports, Medical Images and Health Sciences

Volume 2 Issue 3, 2022

Article Information

Received date: 17/10/2022

Published date: 18/11/2022

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*Keywords:

Pattern, Psoriasis, Hail, Saudi Arabia.

Pattern of psoriasis in the Hail region of Saudi Arabia

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Abstract

Background: Psoriasis is a chronic immune-mediated inflammatory disorder affecting the skin, nails, and joints in both children and adults. It can have a significant negative impact on the physical, emotional, and psychosocial wellbeing of affected patients.

Objectives: To show the sites, types of psoriasis, and treatment characteristics of cases attending King Khalid Hospital, Hail, Saudi Arabia.

Methods: A hospital-based cross-sectional study was conducted in King Khalid Hospital, Hail over nine months (from 1 January 2019 to 30 September 2019). Data were collected through personal interviews using a questionnaire designed to obtain all data on psoriasis and its associated factors .

Results: The study included 136 cases, 57.4% of which were men, 72.1% were exposed to physical stress, 30.1% were smokers, and consanguinity between parents was found in 39% of cases. The majority (42.6%) of cases had plaque psoriasis, 27.2% guttate psoriasis, 9.6% flexural psoriasis, 7.4% each for scalp and pustular psoriasis, and 5.9% erythrodermic psoriasis. Elbows and knees were the most common sites of psoriasis (57.4%) followed by the lower back (33.1%). Treatment was available for 94.1% of cases and 64% improved after treatment. Altogether, 41.9% of cases had biological treatment, 40.5% topical treatment, 16.2% topical treatment with phototherapy, 8.1% phototherapy, and 0.7% methotrexate.

Conclusion: The most common cutaneous psoriasis in Hail is the plaque type and the most common location of plaque psoriasis is in elbows and knees. Treatment with biological medication has the best cure rate compared with other treatment modalities. Our study supports previous studies confirming the most common distribution and efficacy of biological treatment.

Introduction

Psoriasis is a lifelong inflammatory dermatosis related to an anomaly of the proliferation and differentiation of epidermal cells. It is a chronic non-infectious disease that affects people of all ages [1]. A growing number of population-based studies provide prevalence estimates of psoriasis worldwide [2-6]. Although children present with the same clinical subtypes of psoriasis seen in adults, lesions may differ in distribution and morphology; hence, their clinical symptoms at presentation may vary from those reported by adults [7]. Although the diagnosis of psoriasis is primarily based on clinical features, biopsy can therefore help diagnose children with atypical presentations [8, 9]. The therapy is chosen in accordance with updated guidelines, skin type, clinical history, patient age, severity of psoriasis, and response to previous treatments. Topical agents are usually chosen for milder forms and limited psoriasis, whereas phototherapy, photo-chemotherapy and systemic agents are selected for moderate and severe psoriasis. Biological therapies, the more recent therapies for psoriasis, are particularly used for severe psoriasis [10].

DOI: 10.55920/JCRMHS.2022.02.001080

Although there are many biological interleukin inhibitor treatments in the market such as Secukinumab, Ixekizumab, Brodalumab, Ustekinumab, Risankizumab, Guselkumab, and Tildrakizumab with excellent improvement results, physicians should know the common side effects of each [11]. A previous study of psoriasis in KSA [12] reported a percentage occurrence of 5.3%. There was a male preponderance with a gender ratio of 1.4:1. The mean age of onset in men was 26.9 years compared with 22.3 years in women; 53% of psoriatic cases developed before the age of 30 years. Further, a family history of psoriasis was recorded in 8.4% of cases. The sites of involvement were as follows: lower extremity (44.9%), scalp (41.8%), nails (26.6%), and palmoplantar (12.6%). Plaque psoriasis was the most common clinical type (87.1%), followed by the erythrodermic (4.2%), pustular (3%), guttate (1.9%), flexural, (2.3%), and follicular (0.4%) types.

Our study aims to show the types, sites, and treatment of cases of psoriasis attending King Khalid Hospital, Hail, KSA.

Participants and Methods

Study design, setting, and period: A hospital-based cross-sectional study was conducted in King Khalid Hospital, Hail, KSA over nine months (from 1 January 2019 to 30 September 2019). All clinically diagnosed patients were included in the study after obtaining informed consent from them. Exclusion criteria included patients who refused to participate in the study.

Data collection method: Data were collected through personal interviews using a questionnaire designed to obtain all data on psoriasis and the factors associated with it. The questionnaire included questions on the following:

- Sociodemographic characteristics, physical stress, smoking, and consanguinity between parents of studied cases of psoriasis.
- Types of psoriasis and its sites, types of treatments, and treatment outcomes.

Ethical consideration: During data collection, informed consent was secured from each participant. The questionnaires used in data collection were anonymous and the confidentiality of the data was assured.

Statistical analysis: Statistical analysis was carried out using SPSS software for Windows (version 16). Sample characteristics were summarized as numbers and percentages for the categorical variables.

Results

As shown in Table (1), 57.4% of cases were men, 45.6% were married, 57.4% were highly educated (university), 72.1% were exposed to physical stress, only 30.1% were smokers, and consanguinity between parents was found in 39% of the studied cases. Regarding types of psoriasis, 42.6% of cases had plaque psoriasis, 27.2% guttate psoriasis, 9.6% flexural psoriasis, 7.4% each scalp and pustular psoriasis, and 5.9% erythrodermic psoriasis. Elbows and knees were the most common sites of psoriasis (57.4%), followed by elbows, knees, and lower back (33.1%), as shown in Table (2).

Table (3) shows that treatment was available for 94.1% of cases but only 64% improved after treatment. In total, 41.9% of cases had biological treatment, 40.5% topical treatment, 16.2% topical treatment (cream) + light therapy, 8.1% light therapy, and 0.7% methotrexate. Altogether, 37.5% of patients did not know the name of their treatment, while 23.5% reported vitamin D isotopes, 19.9% moisturizing cream, 7.4% corticosteroids, 5.1% salicylic acid, 4.4% coal tar, and 0.7% retinoid cream. Regarding the type of biological treatment, 25% reported etanercept (Enbrel), 14.8% adalimumab (Humira), and 2.9% infliximab. Over half of cases (52.6%) improved by biological treatment, as shown in Table (4).

Table 1: *Socio-demographic characteristics, physical stress, smoking, and consanguinity between the parents of studied cases of psoriasis, Hail, 2018 (N=136)*

Gender	No.	%
Female	58	42.6
Male	78	57.4
Marital status		
Widow	4	2.9
Single	61	44.9
Married	62	45.6
Divorced	9	6.6
Educational level		
Primary	4	2.9
Secondary	45	33.1
University	78	57.4
Illiterate	2	1.5
Preparatory	7	5.1
Working status		
Not working	63	46.3
Working	73	53.7
Physical stress		
Yes	98	72.1
No	38	27.9
Smoking		
Yes	41	30.1
No	95	69.9
Consanguinity between parents		
Yes	53	39.0
No	83	61.0

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Table 2: *Site and type of psoriasis, seeking medical advice, and diagnosis among studied cases of psoriasis, Hail, 2019*

Site of psoriasis	**No.**	**%**
• Elbows and knees	78	57.4
• Elbows, knees, and lower back	45	33.1
• Elbows, knees, and toes	7	5.1
• Lower back and axilla	6	4.4
Type of psoriasis		
• Plaque psoriasis	58	42.6
• Guttate psoriasis	37	27.2
• Flexural or inverse psoriasis	13	9.6
• Scalp psoriasis	10	7.4
• Pustular psoriasis	10	7.4
• Erythrodermic psoriasis	8	5.9

Table 3: *Treatment characteristics of cases of psoriasis, Hail, 2019*

Treatment available	**No.**	**%**
No	8	5.9
Yes	128	94.1
Improvement after treatment		
No	49	36.1
Yes	87	64.0
Type of treatment		
Light therapy	11	8.1
Biological treatment	57	41.9
Topical treatment	55	40.5
Topical treatment (cream) + light therapy	22	16.2
Methotrexate	1	.7
Name of medical treatment		
Don't know	51	37.5
Anthralin	1	.7
Salicylic acid	7	5.1
Retinoid cream	1	.7
Coal tar	6	4.4
Moisturizing cream	27	19.9
Corticosteroids	10	7.4
Calcineurin inhibitors	1	.7
Vitamin D analog	32	23.5

Table 4: *Type of biological treatment and treatment outcome*

Type of biological treatment (N = 57)		
Adalimumab (Humira)	20	35.0
Etanercept (Enbrel)	33	58.0
Infliximab	4	7.0
Outcome of cases on biological treatment (N = 57)		
Improvement	30	52.6
Getting worse	9	15.8
Completely cured	7	12.3
No response	11	19.3
Doing regular investigations		
Yes	62	45.6
No	74	54.4

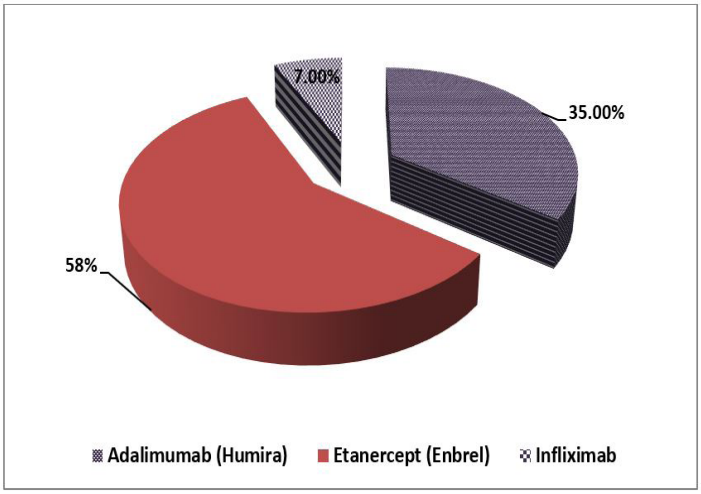

Figure 1: *Type of biological treatment, Hail, KSA, 2019.*

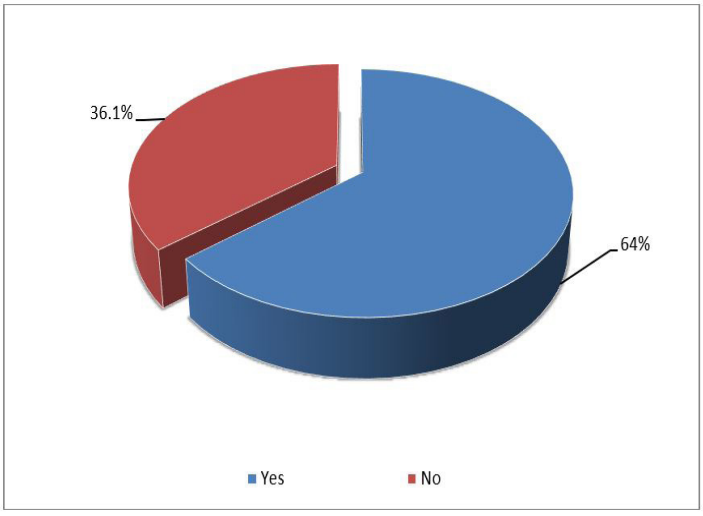

Figure 2: *Improvement after treatment, Hail, KSA, 2019.*

DOI: 10.55920/JCRMHS.2022.02.001080

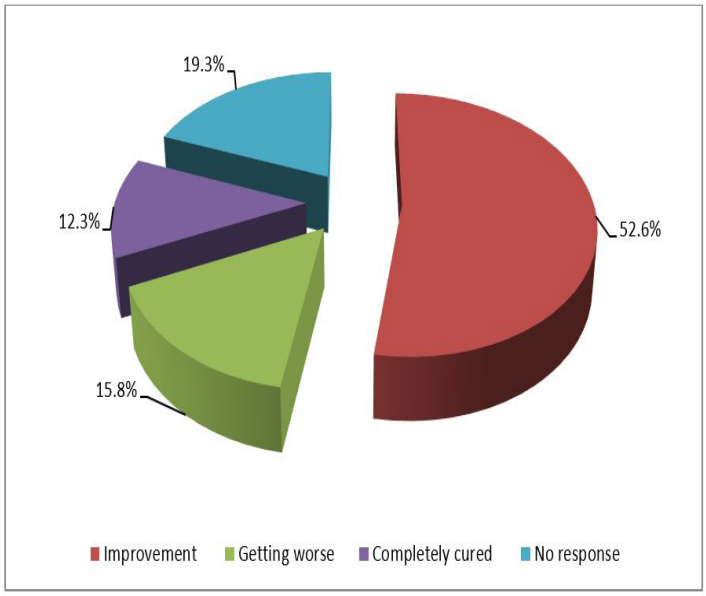

Figure 3: *Outcome of biological treatment, Hail, KSA, 2019.*

Discussion

Psoriasis is a chronic immune-mediated inflammatory disorder affecting the skin, nails, and joints in both children and adults. It is non-infectious disease that affects people of all ages, with no predilection for gender [13]. It can involve the skin, nails, and joints and is associated with a number of comorbidities. It can have a significant negative impact on the physical, emotional, and, psychosocial wellbeing of affected patients. The etiology remains unclear and treatment is still mostly based on combating acute symptoms. Although psoriasis occurs worldwide, its prevalence varies considerably. In the United States, approximately 2% of the population are affected.

Psoriasis is estimated to affect 2–4% of the population of the western world [15]. The rate of psoriasis varies 17according to age, region, and ethnicity; a combination of environmental and genetic factors is thought to be responsible for these differences [15]. It can occur at any age, although it most commonly appears for the first time between the ages of 15 and 25 years. Approximately one-third of people with psoriasis report being diagnosed before age 20 [16].

As regards treatment, in the United Kingdom, a population-based study reported that 91.8% of patients with a diagnostic code for psoriasis received a prescription for therapy; topical corticosteroids were the most frequently prescribed medication, received by 61.4% of patients. The next most commonly used prescription treatment types were corticosteroid combination products (40.4% of patients), topical vitamin D analogs (39%), topical tar (24.5%) and systemic agents (2.3%) [17,24].

In our study carried out in 2019, the data were collected from a sample of patients in our dermatology clinic. At that time, not all new biological treatments were available in our clinic. Psoriasis appears to be slightly more prevalent among men than women (57.4% in our study).

Psoriasis is a disease that has the Koebner phenomenon. As work causes more trauma to the body, workers (53.7%) are more susceptible than non-workers. Psoriasis can be aggravated by physical stress (72% of cases in our study). It can also increase with smoking; however, non-smokers were more affected in our study (69%), maybe because of the stigma of disclosing this information to our questioner. Psoriasis is not a hereditary or genetic disease and our study showed that consanguinity is low between psoriasis patients (39%). Plaque psoriasis is the most common type of psoriasis (42% in our study) and the most common location is extremities, especially in elbows and knees (57%).

There are different types of psoriasis. In a population-based retrospective study carried out among 3,105 subjects, the prevalence of psoriasis was 52.6%. The majority of subjects (79%) had chronic plaque psoriasis, followed by scalp psoriasis (42%), guttate psoriasis (8%), sebo-psoriasis (5.3%), and pustular psoriasis (3.3%) [17]. Another population-based study conducted among patients aged under 18 years reported that chronic plaque psoriasis was the most common type (73.7%) [18]. An epidemiologic survey of 112 childhood psoriasis cases reported that the most common form of psoriasis was plaque (69.6%), followed by guttate (25.9%) [19]. In China, a retrospective epidemiologic study of 277 psoriasis patients found that 190 (68.6%) had plaque-type psoriasis, 80 (28.9%) guttate psoriasis, three (1.1%) pustular forms of psoriasis, and four (1.4%) erythroderma [20].

In the United States, a large prospective study conducted among participants from three cohorts, namely, the Health Professionals Follow-up Study (HPFS), the Nurses' Health Study (NHS) and the Nurses' Health Study 2 (NHS II), described the prevalence of psoriasis phenotypes as follows: plaque 55%, scalp 52%, palmar–plantar 14%, nail 23%, and inverse 21% in the NHS (n = 1604); plaque 60%, scalp 56%, palmar–plantar 16%, nail 27%, and inverse 24% in the NHS II (n = 1575); and plaque 55%, scalp 45%, palmar–plantar 12%, nail 27%, and inverse 30% in the HPFS (n = 646) [21].

Bedi [23] analyzed data on 530 psoriasis patients, finding that chronic plaque-type psoriasis was the most common (90%) clinical phenotype, followed by palmoplantar psoriasis and flexural psoriasis; by contrast guttate psoriasis, mucosal involvement, and psoriatic erythroderma were uncommon. In northern India, a study of 419 patients reported that classical plaque psoriasis was the most frequent clinical

DOI: 10.55920/JCRMHS.2022.02.001080

presentation [254 (60.6%) patients], followed by plantar psoriasis [54 (12.8%)]. Nail involvement was observed in 130 (31%) cases [26].

The most commonly involved sites were extremities (59.9%) and the scalp (46.8%) [18]. In another study in China, cases were divided into an initial onset and recurrent group; the top three sites in the initial onset group were the extensors of legs (65.5%), arms (51.4%), and scalp (46.5%); the same was found in the recurrent group [20]. Okhandiar et al. [22] collected epidemiological data on 116 psoriasis patients from various medical colleges and found that the extensors (93%) were the most common site of involvement followed by the scalp (88%); the face, palms, soles, and nails were affected in one-third of cases. Kaur et al. [24] reported the scalp (25%) as the most common first site of involvement followed by the legs (20.6%) and arms (11.7%); oral (0.7%) and genital (0.4%) mucosal involvement was found to be uncommon.

As regard complications, Okhandiar et al. found pruritus to be present in 95% of cases, while a burning and smarting sensation arose in around 15% of cases [22]. Bedi noted itching to be a significant complaint in 81% of patients [23]. Kaur et al. found that burning and stiffness were uncommon (1%), while pruritus was complained about by 65% of patients [24].

Our government provides free therapy for all citizens for any diseases and our patients are almost fully compliant to their medication regimens, with 94%. 64% reaching the PASI 75% score (Figure 2). Most of our patients take the biological treatment because our clinic is the only one in the Hail region providing it; our clinic is also a referral center for difficult dermatological diseases in the Hail area. In general, most medication is written in English and few patients know the name of their medication, as shown in our study (only 37% knew their medication).

The new evolution of biological treatment makes choosing treatment difficult; however, our clinic has only three biological treatments. The first is etanercept, which later came with an injectable pen. Most of our patients use etanercept (58%) (Figure 1). The biological treatments have very good improvement rates. As our study shows, most patients (52%) reach the PASI 75 score (Figure 3).

Conclusion

The most common cutaneous psoriasis in Hail is the plaque type and the most common location of plaque psoriasis is the elbows and knees. Treatment with biological medication has the best cure rate compared with other treatment modalities. Our study supports previous studies by confirming the most common distribution and efficacy of biological treatment.

Recommendations: Large community-based studies of all Saudi Arabian citizens are mandatory for registering all cases of psoriasis and their treatment.

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