

EPIDEMIOLOGY AND CLINICAL FEATURES OF PAEDIATRIC PATIENTS WITH PSORIASIS IN MALAYSIA: EVIDENCE FROM THE MALAYSIAN PSORIASIS REGISTRY (2007-2012)

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Abstract

Background: Psoriasis is a common dermatological condition affecting both adults and children. It causes significant physical and psychological burden on patients and adversely affect their quality of life.

Aim: To evaluate the clinical characteristics of paediatric patients with psoriasis in Malaysia.

Materials & Methods: Data were obtained from the Malaysian Psoriasis Registry (MPR). All paediatric patients aged <18 years notified to the registry from July 2007 to December 2012 were included in this study.

Results: A total of 677 patients were notified from 18 participating centres. There was a slight female preponderance (ratio 1.3:1). Malay accounted for 70.6%, followed by Chinese (8.9%), Indian (12.3%) and others (8.1%). Mean age of onset was 9.8 ± 4.4 years. Positive family history was noted in 19.1%. Plaque psoriasis was the commonest type of psoriasis (79.6%), followed by guttate psoriasis (7.4%), pustular psoriasis (1.6%), erythrodermic (1.2%) and flexural psoriasis (1.2%). Psoriatic arthropathy was reported in only 2.2% of patients. Nail involvement is common, affecting 38.1%. Pitting was the commonest (89.9%). Topical treatment remains the most popular choice of treatment and was given in 95.1% of our patients. Topical steroid was the commonest prescribed (81.4%), followed by tar preparations (78.7%) and emollients (51.6%). Only 1.2% of our patients received phototherapy. Of the patients who had phototherapy, narrowband UVB (NBUVB) was the commonest used (87.5%). Systemic therapy was given in 5.3% of paediatric patients. The most frequently used systemic therapy was methotrexate (50%) and acitretin (27.8%). The mean CDLQI score for paediatric patients with psoriasis was 7.7 ± 5.5 .

Conclusion: Data from the Malaysian Psoriasis Registry highlights the clinical features of paediatric patients with psoriasis in Malaysia. We hope to get more participation from other centres in the future, especially from private sectors, so that our results can represent the Malaysian data more accurately.

Keywords: psoriasis, paediatric, epidemiology

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Introduction

Psoriasis is a genetically determined chronic inflammatory disorder affecting the skin, nails and joints. It is characterized by well demarcated, erythematous, scaly plaques. It is common, affecting 1 - 3% of the general population and can affect both adult and children.¹ Both genetic and environmental factors play an important role in triggering psoriasis.

Little information is available on the prevalence of psoriasis in children. Previous studies found prevalence estimates of paediatric psoriasis ranging from 0.5% to 1.4%.² Onset during the first 2 decades of life is reported in 31% to 45% of affected adults.³ Although a recent study suggested that childhood onset of psoriasis is not associated with disease severity, early onset may result in longer exposure to a chronic inflammatory condition and, thus, may affect the morbidity and mortality risk.⁴ It carries a significant physical and psychological burden on patients and adversely affect their quality of life.

Thus, we aim to evaluate the clinical characteristics of paediatric patients with psoriasis in Malaysia.

Methology

This was a multicenter study involving 18 dermatology out-patient clinics participating in the Malaysian Psoriasis Registry (MPR). The MPR is a prospective, ongoing, systematic collection of data on patients with psoriasis in Malaysia. Confirmation of diagnosis by histopathologic examination is optional. All paediatric patients aged <18 years notified to the registry from July 2007 to December 2012 were included in this study.

Data were collected on the patient's first visit and every 6 months during follow-up visits. The impact of psoriasis on the quality of life of paediatric patients was determined by using the 10-item Children's Dermatology Life Quality Index (CDLQI). This CDLQI was designed for the paediatric patients from age 5 to 16 years old. Patients above the age of 16 were assessed using the Dermatology Life Quality Index (DLQI). The CDLQI contains 10 questions which measure how much the skin problem has affected the patients' life over the last week. Each question has five possible answers (very much, a lot, a little, not at all or not relevant) with scores of 3, 2, 1 or 0 respectively. The total score ranges between 0 and 30. A score of 0-1 means no effect on QoL, 2-5 small effect, 6-10 moderate effect, 11-20 very large effect and 21-30 extremely large effect.

Collected data was tabulated using SPSS. Categorical data was presented as number and percentages whereas continuous data was presented as mean and standard deviation.

Results

Clinical Features

There were a total of 677 paediatric patients notified to the registry between July 2007 and December 2012. Hospital Tengku Ampuan Rahimah, Klang notified the highest number of paediatric patients, followed by Hospital Sultanah Bahiyah and Hospital Kuala Lumpur (Table 1). Majority of the paediatric patients (83.5%) were new cases and 16.5% were follow-up cases. All patients were Malaysians. Malay accounted for 70.6% of the patients, followed by Indian (12.3%), Chinese (8.9%) and other ethnic groups (8.1%). Slightly more than half of the patients were female (56.9%). There was a slight female preponderance, with male-to-female ratio of 1:1.3.

Psoriasis may first appear at any age. The mean age of onset in our cohort of patients was 9.8 ± 4.4 years. Figure 1 illustrates the onset of psoriasis according to different age groups. The mean age at which psoriasis was first diagnosed by clinician was 11.2 ± 4.3 years. Psoriasis is a skin disorder with a polygenic mode of inheritance. In our registry, about one-fifth (19.1%) of patients had at least one family member with psoriasis. Of those with a positive family history, 34.9% had either parents affected and 16.3% had positive family history in their siblings.

At least one or multiple factors caused aggravation of psoriasis in 38.1% of paediatric patients with psoriasis. Stress was the commonest aggravating factor (57.0%), followed by sunlight (45.0%), infection (20.5%) and trauma (9.3%). Drugs aggravating psoriasis were less common and reported in only 1.2% of the patients. Analyzing the subgroup of patients who reported infection as an aggravating factor, upper respiratory tract infection (66.7%) appeared to be the commonest infective trigger. Patients with psoriasis can have a number of other concomitant diseases and co-morbidities. In children and adolescents aged below 18 years with psoriasis, the most prevalent comorbidity was overweight or obesity (BMI \geq 85th centile), in 27.0% of patients. Other comorbid conditions were less common.

Table 1. Number of paediatric patients with psoriasis notified from each participating centres.

No		No. of paediatric patients notified						Total
		2007	2008	2009	2010	2011	2012	
1	Hospital Tengku Ampuan Rahimah	0	10	18	34	17	10	89
2	Hospital Sultanah Bahiyah	9	30	15	11	10	9	84
3	Hospital Kuala Lumpur	10	21	17	11	9	13	81
4	Hospital Tengku Ampuan Afzan	0	4	10	14	20	17	65
5	Hospital Umum Sarawak	1	15	12	9	7	17	61
6	Hospital Queen Elizabeth	1	8	17	12	8	9	55
7	Hospital Melaka	0	0	6	14	19	13	52
8	Hospital Raja Permaisuri Bainun	4	3	11	2	5	12	37
9	Hospital Pulau Pinang	0	8	13	6	4	0	31
10	Hospital Sultanah Fatimah	2	6	0	3	7	12	30
11	Hospital Sultanah Aminah	0	2	10	5	4	7	28
12	Hospital Tuanku Fauziah	1	8	4	7	5	3	28
13	Hospital Tuanku Jaafar	0	5	0	6	8	0	19
14	Hospital Sungai Buloh	3	5	1	0	0	0	9
15	Gleneagles Medical Centre	0	4	0	0	0	0	4
16	UM Medical Centre	0	0	0	0	2	0	2
17	UKM Medical Centre	0	0	0	1	0	0	1
18	Hospital Raja Perempuan Zainab II	0	0	0	0	0	1	1
TOTAL		31	129	134	135	125	123	677

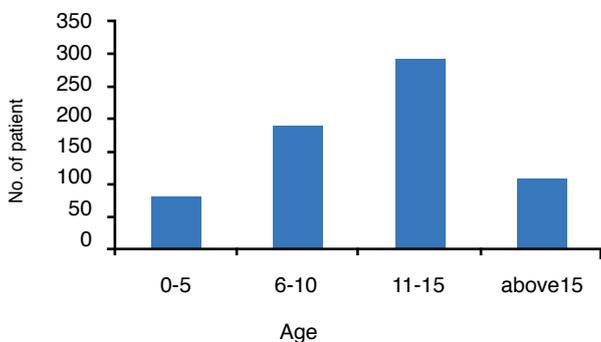


Figure 1. Age of onset of paediatric patients with psoriasis.

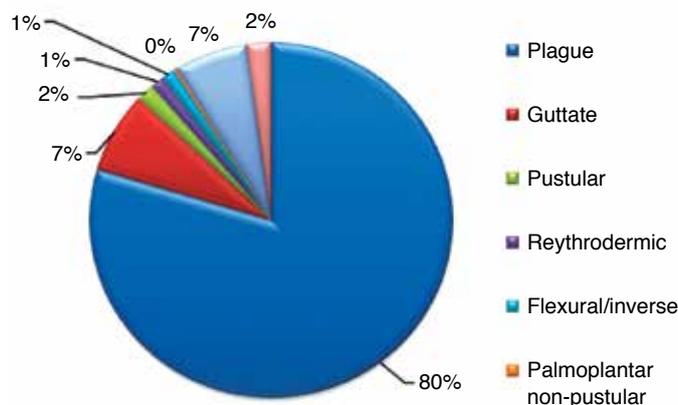


Figure 2. Age of onset of paediatric patients with psoriasis.

Plaque psoriasis was the commonest type of psoriasis and accounted for 79.6% of patients, followed by guttate psoriasis in 7.4% of patients, pustular psoriasis in 1.6% of the patients, erythrodermic psoriasis and flexural psoriasis in 1.2% each. Other types of psoriasis were less common (Figure 2). Majority of our patients had mild to moderate body surface area involvement, with 34.3% of our patients having <5% Body Surface Area (BSA) affected, and 30.3% had 5-10% of BSA affected. Severe psoriasis with >10% BSA affected occurred in 11.7% patients, while 0.6% had erythrodermic psoriasis, with >90% BSA involved. A composite clinical scoring system was used to evaluate the severity of psoriatic lesions in five body regions. A score of 0 to 3 was given for each body region according to the degree of erythema, thickness and scaliness of the skin lesions. The total clinical score may range from 0 to 15. Analysis on the severity of psoriasis in our patients noted that most of the moderate to severe lesions (score 2 and 3) were seen mainly on the scalp region (36.5%), followed by the trunk (24.2%). Almost half (47.3%) of the patients

did not have any lesion on the face and neck. If present, lesions on face and neck were generally less severe (score 1 or 2).

Nail involvement is common in psoriasis, and was seen in 258 (38.1%) of our patients. Among patients who had psoriatic nail disease, the commonest was pitting (89.9%). Other common features were onycholysis (29.1%) and nail discoloration (15.1%). Subungual hyperkeratosis and total nail dystrophy were not common and only noted in 3.5% and 1.9% patients respectively (Figure 3).

Psoriatic arthropathy was reported in only 15 (2.2%) of our patients. The commonest psoriatic arthropathy was oligo/monoarthropathy (6 patients) followed by distal hand joints arthropathy (4 patients) and rheumatoid-like symmetrical polyarthropathy (3 patients). Morning stiffness of > 30 minutes was reported in 13.3% of the patients. Most of the patients with psoriatic arthropathy experienced joint pain at time of presentation (93.3%). Joint swelling and joint deformity were present in only 1 patient.

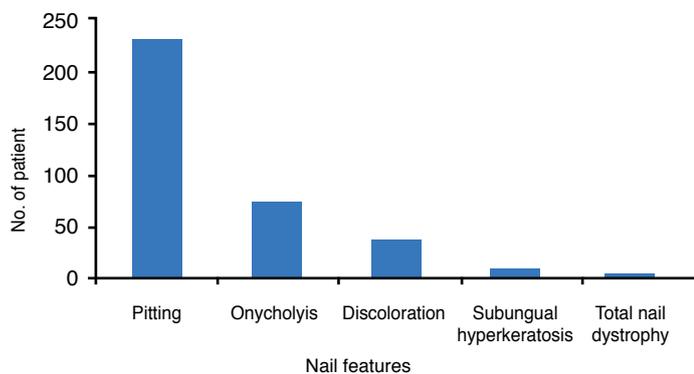


Figure 3. Nail changes in paediatric patients with psoriasis

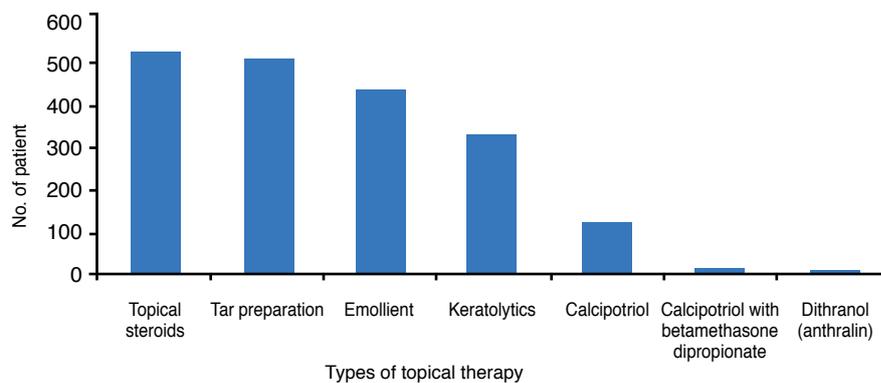


Figure 4. Types of topical therapy used in paediatric patients with psoriasis

Treatment

Majority of the patients (95.1%) were on topical treatment. Topical steroid was the commonest treatment prescribed (81.4%), closely followed by tar preparations (78.7%). Both emollients and keratolytics were prescribed in 51.6% and vitamin D analogue, such as calcipotriol were prescribed in 25.9% of patients. Calcipotriol with betamethasone dipropionate and dithranol were least favoured and used in 3.1% and 1.9% % of patients, respectively (Figure 4). In the last six months prior to notification, 1.2% of paediatric patients received phototherapy. Of the patients who had phototherapy, 87.5% had narrowband UVB (NBUVB) and 12.5% had topical PUVA. Systemic therapy was given in 5.3% of the patients. The most frequently used systemic therapy was methotrexate (50%), followed by acitretin (27.8%). Systemic corticosteroids were used in 8.3% patients. Other systemic agents such as suphasalazine, cyclosporine, hydroxyurea and biologics were not prescribed in our paediatric patients.

Quality of life

Psoriasis can have a major psychological impact on the patients and affect their quality of life. Out of 677 paediatric patients with psoriasis, 260 patients were investigated for their quality of life assessment with the validated questionnaire, Children’s Dermatology Life Quality Index (CDLQI). The mean CDLQI score for our patients was 7.7 ± 5.5 . A CDLQI of more than 10, indicating very large or extremely large effect on their quality of life (QoL)

was reported in 18.4% of patients, and 4.6% of the patients had CDLQI of more than 20, reflecting extremely large effect on their QoL. On the other hand, 11.9% paediatric patients reported no effect at all on their QoL (Figure 5).

Discussion

Psoriasis is a common inflammatory skin condition, affecting between 1-3% of the population.¹ Despite being so common, there are sparse data regarding the incidence of psoriasis in children. A Turkish study estimated the prevalence in children as high as 3.8%.⁴ A population case study in Minnesota, USA found the overall age- and sex adjusted annual incidence of pediatric psoriasis to be 40.8 per 100,000, which was considerably lower than the adult incidence of 78.9 per 100,000 population.⁵⁻⁷ There was a slight female preponderance in our patients, with male to female ratio of 1:1.3. This concur with other studies which demonstrated a higher incidence of psoriasis in girls compared to boys.^{4,8} However, Tollefson et al found that boys and girls were equally affected during childhood.⁶

Several prevalence studies have demonstrated that approximately one third of patients with psoriasis develop their symptoms sometime during childhood, although some of these may not be diagnosed until adulthood.⁹ The mean age of onset of psoriasis in our cohort of patients was 9.8 ± 4.4 years. This was lower compared to other studies which reported mean age of onset of psoriasis between 10.6 - 11 years old.^{6,8}

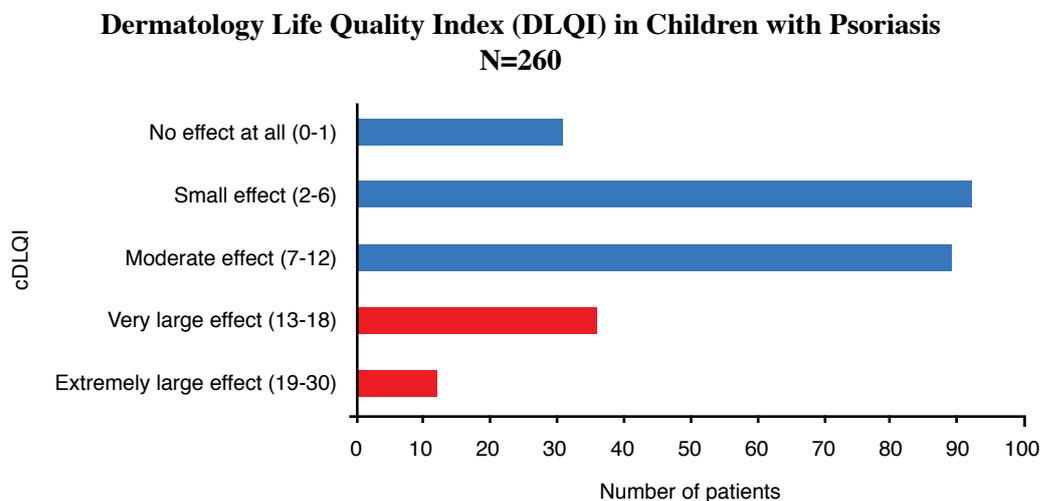


Figure 5. Quality of life in paediatric patients with psoriasis.

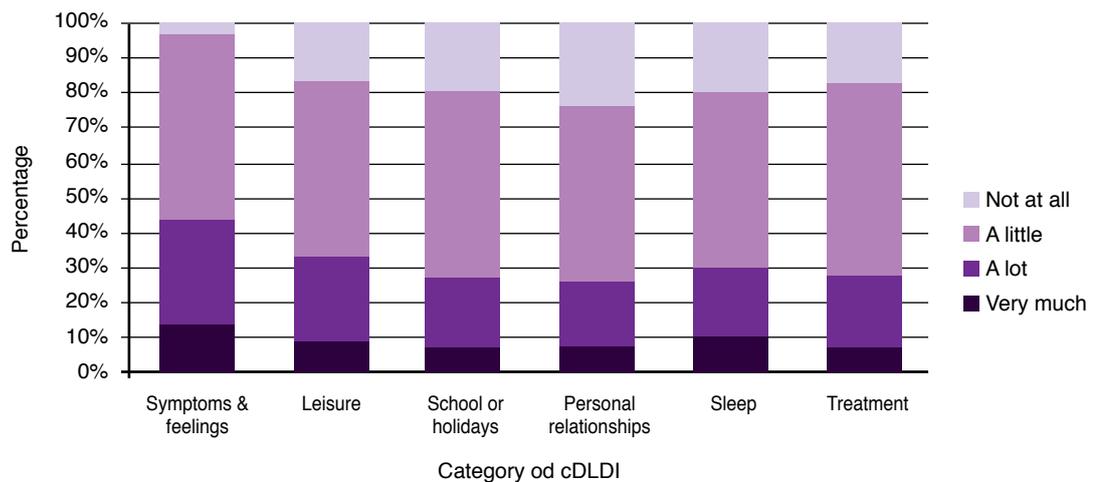


Figure 5. QoL impairment in paediatric patients with psoriasis based on category of DLQI.

Psoriasis can be aggravated by several factors, including medications such as antimalarials, stress and infections such as streptococcal throat infection.^{10,11} More than one third of our patients (38.1%) reported one or multiple factors aggravating their psoriasis, in which stress was the commonest, followed by sunlight and upper respiratory tract infection. Drugs aggravating psoriasis were less common and reported in only 1.2% of the patients. Obesity and being overweight has recently been described as a risk factor for psoriasis in the adult population and it is likely that it plays a significant role in children as well.¹² Our cohort reported 27% of the children were obese (BMI at or above 85th centile). Several prevalence studies have also demonstrated that paediatric patients with psoriasis may be associated with significant comorbidities such as obesity, diabetes mellitus, hyperlipidemia, hypertension, cardiovascular disease, rheumatoid arthritis and Crohn's disease.¹³

Most of the children in our study have chronic plaque psoriasis (79.6%), followed by guttate psoriasis (7.4%). Pustular psoriasis was not very common and was found in only 1.6% of the patients. This is in concordance with other studies in children which found rates of plaque psoriasis in children ranging between 60.6% and 74%.^{6,8,14} Scalp and face were the most frequently affected sites in paediatric population, followed by extensor surfaces of the knees and elbows, trunk and groin.¹⁴ Guttate psoriasis is often the next most common type of childhood psoriasis with proportions

ranging from 9.7% to 28.9%, and is often linked to an infectious trigger, particularly streptococcal infection.^{6,8,14} Nail involvement are observed in up to 40% of children who have psoriasis.¹⁴ Most common nail changes are pitting, but other types of nail involvement such as discoloration, onycholysis, subungual hyperkeratosis and onychodystrophy can be observed. These concur with our results, which reported 38.1% of the paediatric patients with nail involvement, in which pitting was the commonest (89.9%). Although psoriatic arthropathy was reported in 8 - 20% of paediatric patients with psoriasis, our data showed that only 2.2% of our patients were affected.¹⁵

Psoriasis in paediatric group is generally mild and easy to control, but in a few cases the disease might be challenging.¹⁶ It is important to tailor the treatment to reflect the patient's age, severity and location of the condition. In younger patients, parental involvement is required for compliance. Disease control is a more realistic objective than clearance for many children. Topical treatment is the most favoured treatment in children and is usually well tolerated. Our findings showed that topical treatment was the most frequently used agent in treating paediatric patients with psoriasis. Topical steroid was the commonest treatment prescribed (81.4%), followed by tar preparations in 78.7%, emollients in 51.6%, keratolytics in 51.6% and vitamin D analogue such as calcipotriol in 25.9% of the patients.

In children, phototherapy is reserved for those with severe widespread plaque or guttate psoriasis that is not responding to topical therapy. There is concern about the long-term effects of repeated courses of phototherapy because of photocarcinogenesis and photoaging.¹⁷ Parents and children should therefore be fully informed of the potential risks. There are also the practical considerations of supervising young children in phototherapy cabins. Only 1.2% of our patients received phototherapy. Of the patients who had phototherapy, 87.5% had narrowband UVB (NBUVB) and 12.5% had topical PUVA. The low number could be due to under-reporting, as the notification to the registry is done every 6 months, and patients would have completed the phototherapy during this period. A systematic review on the efficacy and safety of treatments for childhood psoriasis by de Jager et al. concluded that NBUVB should not be used in toddlers and infants. In adolescents, it should be used carefully, especially if they have fair skin.¹⁸

Treatment with systemic agents, such as methotrexate, acitretin and cyclosporin is usually reserved for more severe cases, such as pustular psoriasis, erythrodermic psoriasis, psoriatic arthropathy or extensive plaque psoriasis, refractory to other treatment modalities.^{16,18} Methotrexate is an effective treatment option in moderate to severe childhood psoriasis, and is the commonest systemic agent used in our paediatric patients (50%). Retinoid is another systemic agent that can be used in severe psoriasis. Retinoid is an effective treatment for pustular and erythrodermic psoriasis. However, side effects are frequently seen. Acitretin is the second commonest systemic agent used in our patients and accounted for 27.8% of cases. Other systemic agents such as suphasalazine, cyclosporin, hydroxyurea and biologics were not prescribed in our patients.

Studies have shown that psoriasis may affect the quality of life of children.^{19,20} They may be absent from school due to clinic visits or hospitalization. They may also suffer from embarrassment due to

the clinical appearance of the disease. The mean CDLQI score for our patients was 7.7. This was higher than other studies which reported a mean CDLQI of 5.4-7.5.^{19,20} 18.4% of our patients reported a CDLQI of more than 10 indicating very large or extremely large effect on their quality of life (QoL), and 4.6% of the patients had CDLQI of more than 20, reflecting extremely large effect on their QoL. The category of CDLQI most affected was "symptoms and feelings". 39.0% of our patients reported that psoriasis affected very much or a lot in the "symptoms and feelings" domain. This was similar to other study which reported itch and pain to be the most bothersome symptoms in children.²¹

Conclusion

Data from the Malaysian Psoriasis Registry reported a slight female preponderance among paediatric patients with psoriasis in Malaysia. Plaque psoriasis is the commonest type of psoriasis and only a small percentage of the patients had psoriatic arthropathy. Topical therapy, which is safer, with less side effects, remains the treatment of choice in our patients. It is important to note the moderate impairment in the quality of life in paediatric patients with psoriasis. We hope to get more participation from other dermatology centres in Malaysia in the future, especially from private sectors, so that our results can represent the Malaysian data more accurately.

Conflict of interest

The Malaysian Psoriasis Registry received funding from the Dermatological Society of Malaysia, Abbvie Malaysia and LeoPharma Malaysia.

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LEARNING POINTS FROM THIS STUDY

1. It is noted in this study that predominant ethnic group affected is Malay followed by Indian and Chinese. This likely correspond to the clinic attendance among the participating centres, mostly comprising of Dermatology Clinics in government hospitals. This composition might be different in the private setting and thus it is crucial to have data from both the public and private settings.
2. The onset of psoriasis among the Malaysian children is approximately 9.8 years. Thus, it is essential for clinicians to consider psoriasis for older children presenting with skin lesions to their clinics. Finding characteristics plaques on the extensor surfaces of the limbs, scalp, lower back and umbilicus points to the diagnosis. Although eczema is more common in childhood, psoriasis must always be considered in older children.
3. Only a fifth of the children have family history of psoriasis. Hence, clinicians should not rely on this pointer to diagnose psoriasis in the paediatric population.
4. Stress is the most common aggravating factor in psoriasis. This is the case not only in children but also in adult. Determining stress level in children especially the younger ones is a challenge. Thus, stress as an aggravating factor might only apply for older children and more specifically adolescents.
5. It is not surprising that this study found overweight children as a comorbidity in psoriasis. Studies in South East Asia shows that Malaysia is the most obese country in the region. Thus, it is essential for clinicians managing psoriasis to address the issue of obesity as to reduce the cardiovascular risks when these children grow up.
6. Joint disease is uncommon in children, accounting for 2.2% only. Nevertheless, development of arthropathy needs to be frequently checked as to treat the disease early to prevent future complications.
7. Malaysian children with psoriasis have moderate impairment in their quality of life. A CDLQI score of 7.7 points that these children are embarrassed and dismayed by their condition. Thus, optimal treatment of psoriasis is important to address this quality of life issue.

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