

Comorbidities Associated With Psoriasis – Data From The Malaysian Psoriasis Registry

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SUMMARY

All around the world, there is growing evidence of the association between psoriasis and comorbidities which increase the risk of cardiovascular disease. This study aims to determine the prevalence of various comorbidities among adult psoriasis patients in Malaysia.

A cross-sectional study was conducted among patients in the Malaysian Psoriasis Registry from January 2007 to December 2008. A total of 2,267 adult patients with psoriasis from 13 dermatology centers were included. Prevalence of various comorbidities were: hypertension 25.9%, diabetes mellitus 17.7 %, dyslipidaemia 17.8%, overweight 33.2%, obesity 20.7%, ischaemic heart disease 5.8% and cerebrovascular disease 1.4%. These comorbidities were more prevalent in patients with psoriasis of late-onset and longer duration. Active screening of these comorbidities in all adult psoriasis patients is recommended.

KEY WORDS:

Psoriasis, comorbidities, prevalence, Malaysia

INTRODUCTION

Psoriasis is a chronic T cell mediated inflammatory disorder predominantly affecting the skin and has a varied prevalence worldwide. Ethnic factors and geographical differences seem to affect prevalence rates of psoriasis¹. In the past two decades, the understanding of the pathogenesis of psoriasis has changed with advances in genetic and immunological techniques. Although traditionally regarded as a skin disease, psoriasis is now increasingly recognized as a multisystem disorder analogous to other chronic inflammatory immune disorders such as rheumatoid arthritis and systemic lupus erythematosus that are associated with accelerated atherosclerosis and increased risk of cardiovascular morbidity and mortality².

Chronic inflammation has been implicated in the aetiology of atherosclerosis and it is hypothesized that the proinflammatory cytokines are contributing to atherogenesis, insulin resistance and the development of hypertension and type II diabetes mellitus³. The immunopathogenesis of psoriasis, which involves the Th1 lymphocytes and proinflammatory cytokines such as tumour necrosis factor- α (TNF- α), interferon - γ and interleukin-2, may similarly predispose to atherosclerosis and hence, these metabolic disorders. This understanding has also formed the

basis of immune-modulating therapies in the management of psoriasis⁴.

Numerous studies have provided compelling evidence to show that psoriasis is associated with various comorbidities that enhances the risk of cardiovascular disease. Various reports exist from different parts of the world investigating the association of psoriasis with metabolic disorders such as obesity, metabolic syndrome, myocardial infarction, and diabetes mellitus^{6, 7, 8, 9, 10, 11, 12, 13, 14}. However, such studies are lacking in the Malaysian population. This study aims to determine the prevalence of comorbidities among adult psoriasis patients in Malaysia.

MATERIALS AND METHODS

A cross-sectional study was conducted among patients notified to the Malaysian Psoriasis Registry between January 2007 and December 2008. The Malaysian Psoriasis Registry is an on-going prospective systematic collection of data using a standardized questionnaire on patients clinically diagnosed to have psoriasis in various dermatology centers in Malaysia. All patients with psoriasis aged 18 and above who received treatment in 13 centers were included. Patients were examined for clinical subtype of psoriasis, nail and joint involvement and extent of body surface area (BSA) involvement. Medical history of any concurrent diseases was obtained. Active screening for other diseases was performed only if clinically indicated. Psoriatic arthropathy and psoriatic nail disease were considered as clinical manifestations of psoriasis and not as comorbidities.

Body mass index (BMI) was calculated as BMI = weight (kg) / height (m²). Patients were classified as overweight (BMI 25-29.9) and obese (BMI \geq 30) according to the standard World Health Organization (WHO) classification to facilitate comparison with data from other studies.

Severity of disease was based on the extent of body surface area (BSA) involvement. Patients with <10% BSA involved were classified as having mild to moderate psoriasis, and patients with 10% or above BSA involved were classified as having severe psoriasis.

Patients were also classified according the onset of the disease. Those with onset before the age of 40 were classified as having type 1 (early-onset) psoriasis and those with onset at age 40 and above as having type 2 (late-onset) psoriasis¹³.

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Table I: Clinical characteristics of the adult psoriasis patients

Variables	N (%)
Total number of patients	2,267
Gender	
• Male	1,307 (57.7%)
• Female	960 (42.3%)
Age (mean, years)	46.25 ± 15.01
Ethnic groups	
• Malay	1,077 (47.5%)
• Chinese	610 (26.9%)
• Indian	341 (15%)
• "Orang Asli" (natives)	3 (0.1%)
• Others	234 (10.3%)
Duration of psoriasis (mean and range, years)	10.63, 0 – 72
Body surface area involvement (n=1,836)	
• <10% (mild)	1,432 (78%)
• ≥10% (moderate to severe)	404 (22%)
Onset of psoriasis	
• 40 years or below (Type 1 psoriasis)	1,428 (63%)
• Above 40 years (Type 2 psoriasis)	839 (37%)

Prevalence of diseases was expressed as percentage of the total number of adult psoriasis patients studied. Analyses were performed using SPSS version 14.0. Comparisons of prevalence figures between patient subgroups were performed using Chi-Square test with significance level of 0.05.

RESULTS

A total of 2,267 patients were included in the study (Table I). There was a slight male preponderance with a male-to-female ratio of 1.4:1.

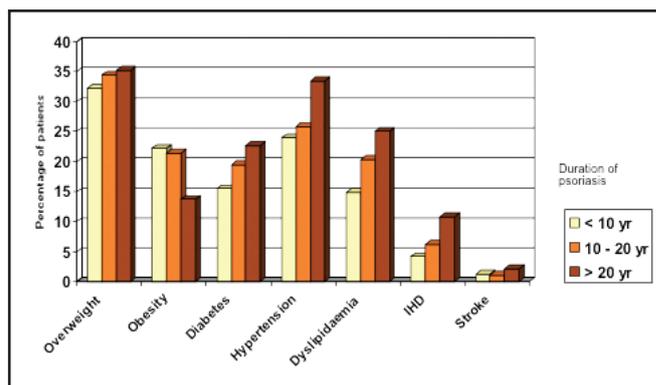
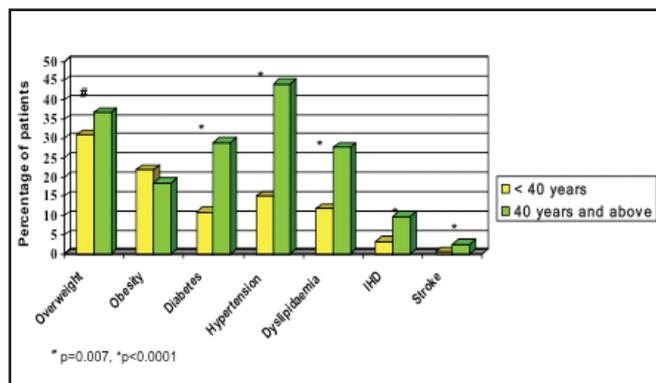
Overweight was the most prevalent comorbidity, affecting 33.2% of the patients with psoriasis, followed by hypertension (25.9%), obesity (20.7%), dyslipidaemia (17.8%), diabetes mellitus (17.7%), ischaemic heart disease (5.8%) and stroke (1.4%).(Table II).

Other less prevalent comorbidities reported in adult psoriasis patients were bronchial asthma (1.6%), HIV infection (0.44%), gout (0.4%), hyperthyroidism (0.4%), schizophrenia (0.4%), benign prostatic hyperplasia (0.31%), chronic kidney disease (0.31%), urinary calculi (0.31%), chronic hepatitis B (0.26%), chronic obstructive pulmonary disease (0.26%), chronic hepatitis C (0.22%), hypothyroidism (0.22%), epilepsy (0.22%), cardiac failure (0.22%), systemic lupus erythematosus (0.18%) and Down syndrome (0.18%).

The relationship between the prevalence of various comorbidities which increase cardiovascular risks and clinical characteristics of psoriasis were investigated. Patients with longer duration of psoriasis had higher prevalence of diabetes mellitus, hypertension, dyslipidaemia, ischaemic

Table II: Prevalence of common comorbidities in adult psoriasis patients

	Prevalence (%) N = 2,267
Overweight	33.2
Hypertension	25.9
Obesity	20.7
Diabetes mellitus	17.7
Dyslipidaemia	17.8
Ischaemic heart disease	5.8
Stroke	1.4

**Fig. 1:** Relationship between prevalence of comorbidities and the duration of psoriasis.**Fig. 2:** Relationship between prevalence of comorbidities and age of onset of psoriasis.

heart disease, overweight and stroke (Figure 1). However, prevalence of obesity was notably lower in patients with chronic psoriasis of more than 20 years.

The prevalence of comorbidities was also compared between patients with mild to moderate psoriasis (<10% BSA involved) and those with severe psoriasis (10% or above BSA involved). There was no significant difference in the prevalence of the common comorbidities between these two groups of patients. The proportions of patients who were obese, overweight and those with normal BMI in these two groups were also similar. Apart from obesity, prevalence of all other common comorbidities was significantly higher in patients with type 2 (late-onset) psoriasis. (Figure 2)

DISCUSSION

Psoriasis is a chronic inflammatory skin disease which has been associated with unfavourable cardiovascular risk profile. A case-control study by Henseler and Christophers involving 2,941 psoriasis patients showed an increased prevalence of obesity, diabetes mellitus, hypertension and cardiac insufficiency⁵. Shapiro *et al.* also demonstrated higher age-adjusted proportion of diabetes mellitus and various atherosclerotic-related diseases in their cohort involving 46,095 psoriasis patients in Israel⁶. Our study has shown the prevalence of various cardiovascular comorbidities among local patients but more cohort and case control studies are needed to elucidate the precise risk factors for psoriasis.

We found no significant difference in the prevalence of comorbidities between mild to moderate psoriasis and severe psoriasis groups. The relationship between severity of psoriasis and comorbidities varies in different studies. A large population-based study by Neimann *et al.* in the United Kingdom involving a total of 131,560 patients demonstrated increased prevalence of obesity and diabetes mellitus in patients with severe psoriasis⁷. Gelfand *et al.* reported increased age-adjusted relative risk for myocardial infarction in their population-based cohort study involving 130,976 patients. Interestingly, they also found that younger patients with severe psoriasis had the highest relative risk for myocardial infarction⁸. In central China, Xiao *et al.* reported higher prevalence of myocardial infarction in patients with psoriasis compared to controls, and the risk being highest in those with severe disease⁹. In a study reported by Sommer *et al.*, metabolic syndrome was more prevalent in patients with severe psoriasis¹⁰. On the other hand, Gisondi *et al.* found no correlation between severity of psoriasis and the prevalence of metabolic syndrome¹¹. The difference in the definition of psoriasis severity adopted might have contributed to the varying results of these studies. Severity of psoriasis has been defined based on various measures including BSA involvement, Psoriasis Area and Severity Index (PASI), quality of life impairment, requirement of inpatient treatment, and the use of systemic treatment. Gudjonsson *et al.* suggested that severity measure of psoriasis should take into account multiple parameters including BSA involvement, presence of arthropathy and intensity of treatment¹².

We noted that prevalence of certain comorbidities seems to increase with the duration of psoriasis. This may be coincidental as patients with longer duration of psoriasis are generally older and hence have higher risk of developing diabetes, hypertension, ischaemic heart disease and stroke. An observational, cross-sectional study such as ours will not be able to analyze the association between duration of disease and comorbidities. However, it is interesting to note that obesity was less prevalent in patients who had psoriasis for more than 20 years.

Henseler and Christophers first proposed a classification which divided psoriasis into two subtypes based on the age of disease onset¹³. Patients with onset earlier than age of 40 (type 1 psoriasis) tends to have more severe disease, positive family history and strong association with HLA-Cw6, compared to patients with onset at age 40 and above (type 2

psoriasis). We found that the prevalence of comorbidities was higher in patients with late-onset (type 2) psoriasis as compared to early-onset (type 1) psoriasis. However, this may be partly explained by the significantly higher proportion of older patients in the group with type 2 psoriasis compared to the group with type 1 psoriasis (median age 58 versus 38 years respectively, $p < 0.001$).

There are several limitations in our study. The diagnosis of various comorbidities in psoriasis patients was based on patient's history and available medical records. Neither active screening nor confirmatory investigations for these conditions were routinely performed. Hence, over- or under-estimation of the prevalence of comorbidities may occur. There may be selection bias as our study included mainly patients who sought treatment in secondary and tertiary referral centers. A large, prospective case-control study will be able to determine the relative risk for the various comorbidities among our patients.

CONCLUSION

Comorbidities which increase the risk of cardiovascular disease are common among adult patients with psoriasis in Malaysia. These findings should influence a change in the way we perceive and manage psoriasis. The perception of psoriasis being merely 'skin deep' has to change among clinicians; dermatologists and non-dermatologists alike. Active screening for these cardiovascular comorbidities in all adult psoriasis patients is highly recommended. Proactive steps should be taken to improve any modifiable risk factors of cardiovascular diseases. Referrals to appropriate subspecialties should be considered for optimal management of these conditions.

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