# Risk factors for disease progression to psoriatic arthritis among Malaysian psoriasis patients: a 13 year registry review (2007 – 2019)

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## INTRODUCTION

Psoriasis (PsO) is a chronic, autoimmune, inflammatory, disfiguring and disabling disease. The most prevalent co-existing condition in PsO is psoriatic arthritis (PsA), which develops in up to 30% of PsO patients.[1] There is limited information pertaining to the risk factors for PsA among PsO patients in Malaysia. The objective of this review is to study the risk factors for PsA among PsO patients in Malaysia.

## METHODS

This is a multicenter cross-sectional observational study. Data was obtained from the Malaysian Psoriasis Registry which is a nationwide prospective, ongoing, systematic data collection of patients with PsO treated at 34 public hospitals and 2 private hospitals. All patients aged 18 years and above and registered from January 2007 till December 2019 were included in this analysis.

## RESULTS

- From a total of 21,349 PsO patients, 2,938 (14%) were diagnosed with PsA.
- The male to female ratio in the PsA group was 1:1.
- The mean age of onset (Mean±SD, years) for PsO patients with PsA was 34.97±14.37 and 35.43±23.84 for patients without PsA.
- The cohort with PsA had a longer disease duration at presentation compared to those without PsA (12.45±10.40 years vs 9.30±9.84 years, p<0.001).
- Family history of PsO was present in 26% of PsA patients compared to 23% in those with no PsA (p<0.001, risk ratio 1.13).
- PsO patients with scalp, nail and erythrodermic PsO exhibited a greater risk for developing PsA (**Table 1**).
- Severe disease (BSA>10%), hypertension, type 2 diabetes, hyperlipidemia and obesity were also shown to be risk factors for PsA (**Table 2** & **3**).

## DISCUSSION

The results of this study were consistent with other studies in terms of risk factors for PsA.

- A study in Germany by Reich K, et al found a higher rate of family history of PsO in the PsA cohort compared to the non-PsA cohort (46.5% vs 36.8%, p=0.006).[2]

**Table 1. Risk of PsA in PsO based on type of psoriasis**

| Type as risk factor | PsA patients with Risk factor (%) | PsA patients without Risk factor (%) | Risk ratio^ |
|---|---|---|---|
| Scalp involvement | 13.2 | 12.0 | 1.1 |
| Nail involvement | 17.6 | 8.2 | 2.1 |
| Nail pitting | 17.0 | 11.6 | 1.5 |
| Nail discoloration | 20.6 | 12.6 | 1.6 |
| Total nail dystrophy | 21.5 | 13.8 | 1.6 |
| Subungual hyperkeratosis | 22.5 | 13.3 | 1.7 |
| Onycholysis | 19.9 | 11.7 | 1.7 |
| Erythrodermic subtype | 25.3 | 13.5 | 1.9 |

^Percentage of PsA patients with risk factor/percentage of patients without risk factor; PSA: Psoriatic arthritis; PsO: psoriasis

**Table 2. Risk of PsA in PsO based on severity of psoriasis**

| Severity | PsA patients with Risk factor (%) | PsA patients without Risk factor (%) | Risk ratio^ |
|---|---|---|---|
| BSA <5 % | 48.2 | 41.1 | 0.9 |
| BSA 5-10% | 30.3 | 28.8 | 1.0 |
| BSA >10-90% | 19.8 | 26.1 | 1.3 |
| BSA >90% | 1.8 | 4.0 | 2.2 |

^Percentage of PsO patients diagnosed with PsA/percentage of PsO patients without PsA; BSA: Body surface area; PSA: Psoriatic arthritis; PsO: psoriasis

**Table 3. Risk of PsA in PsO based on comorbidities**

| Comorbidities as risk factors | PsA patients with Risk factor (%) | PsA patients without Risk factor (%) | Risk ratio^ |
|---|---|---|---|
| Hypertension | 16.7 | 12.8 | 1.3 |
| Diabetes, type 2 | 16.6 | 13.2 | 1.3 |
| Hyperlipidemia | 18.2 | 12.8 | 1.4 |
| Obesity (BMI >25) * | 14.7 | 12.1 | 1.2 |

* BMI classification for adult Asians as stated in the World Health Organization. Regional Office for the Western Pacific. (2000). The Asia- Pacific perspective: redefining obesity and its treatment. Sydney: Health Communications Australia; ^Percentage of PsA patients with risk factor/percentage of patients without risk factor; BMI: Body Mass index; PSA: Psoriatic arthritis; PsO: psoriasis

## DISCUSSION (continued)

- Severe PsO is more prevalent among PsO patients with PsA than patients without PsA.[3,4]
- Similarly, it was shown that PsO patients with scalp and nail involvement are at a higher risk of developing PsA.[5,6]
- Yan et al reported that family history of PsO and cardiometabolic comorbidities were associated with the development of PsA.[7]
- An observational study in China by Yang Q, et al demonstrated a higher incidence of PsA among erythrodermic PsO patients compared to other PsO subtypes.[8]
- A population-based study in the UK showed that the relative risk for PsA increases proportionately with the increase in body mass index.[9]

Recognising the risk factors for PsA in PsO patients provides the means for in depth scrutiny of the genetic, demographic, clinical as well as the molecular and cellular mechanisms involved in the progression to PsA which currently is unclear. This understanding should ultimately lead to research on treatment to halt, delay and prevent PsA.

## CONCLUSION

Malaysian PsO patients with family history of PsO, nail and scalp involvement, erythrodermic psoriasis, severe disease (BSA >10), and cardiometabolic comorbidities appeared to be at an increased risk for PsA.

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