Correlation between psoriasis disease severity and risk of cardiometabolic comorbidities among patients in Malaysia and effect of obesity on treatment: a 13 year registry review (2007 – 2019)

Suganthy Robinson[1], Lim Jin Huang[1], Suganthi Thevarajah[1], Min Moon Tang[1], Rajalingam Ramalingam[2], Tey Kwee Eng[3], Norli Marwyne Mohd Noor[4], Tan Wooi Chiang[5], Preamala Gunabalasingam[6], John Tiong[7], Ai Ven Tee[7], Vidya Sagar AEC[8]

[1]Department of Dermatology, Hospital Kuala Lumpur; [2]Department of Dermatology, Hospital Tengku Ampuan Afzan; [3]Department of Dermatology, Hospital Sultanah Aminah; [4]Department of Dermatology, Hospital Sungai Buloh; [5]Department of Dermatology, Hospital Pulau Pinang; [6]Department of Dermatology Hospital Tuanku Ja'afar; [7]Novartis Corporation (M) Sdn Bhd, Malaysia; [8]Novartis healthcare private limited, Hyderabad

P1316

INTRODUCTION

Psoriasis (PsO) is a chronic, systemic immune-mediated disease with manifestations beyond the skin. The systemic inflammation in PsO is associated with an increased cardiometabolic risk[1]. It has also been reported that obesity in psoriasis may have a negative impact on treatment response[2]. At present, there is limited information pertaining to these aspects among Malaysian PsO patients. The objective of this review is to study the correlation between PsO disease severity and cardiometabolic risk as well as the impact of obesity on PsO treatment efficacy in Malaysia.

METHODS

This is a multicenter longitudinal observational study. Data was utilized from the Malaysian Psoriasis Registry which is a nationwide, prospective, systematic data collection of patients with psoriasis 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 study. Cardiometabolic diseases is defined as a composite of diabetes, hypertension, dyslipidemia, stroke and myocardial infarction. For obesity, the World Health Organization (WHO), Asia-Pacific perspective definition was used (Non-obese: Body Mass Index [BMI] <25, Obese: BMI ≥25).

RESULTS

A total of 21,942 PsO patients aged 18 and above were registered during the study period. Of these, 5,103 with follow-up data were included in this analysis.

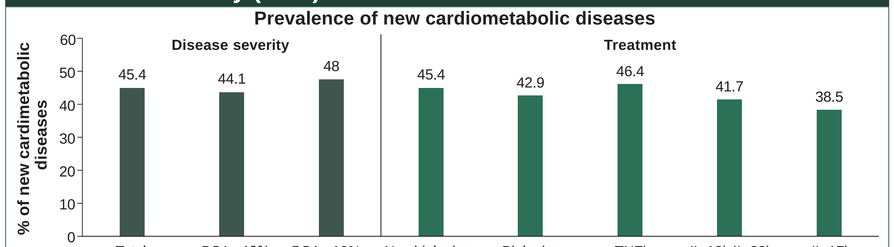
- The prevalence of cardiometabolic diseases was relatively higher in patients with a body surface area (BSA) of >10% compared to patients with a BSA of ≤10% (**Figure 1**).
- The risk of developing new cardiometabolic diseases was lower among patients treated with biologics (Odds ratio [OR]: 0.90) compared with those on conventional systemic treatment, with variable risks observed among the different classes of biologics (**Figure 1**) (**Table 1**).
- Non-obese patients (BMI <25) achieved a better response to treatment compared with obese patients as shown by the increase in percentage from baseline in number of patients achieving a BSA of <5% (Biologics: Non-obese vs obese is 23.7% vs 13.9%; Non-biologics: 13.4% vs 12.2%; All PsO patients: 14% vs 12.7%) (**Figure 2**).

Table 1. Odds ratio of newly diagnosed^ cardiometabolic diseases according to treatment groups

Treatment	Percentage of new cardiometabolic diseases	Odds ratio* (95% CI)
Biologics	42.9	0.90 (0.57 to 1.42)
TNFi	46.4	1.04 (0.49 to 2.20)
IL-12i,IL-23i	41.7	0.86 (0.44 to 1.67)
IL-17i	38.5	0.75 (0.25 to 2.30)

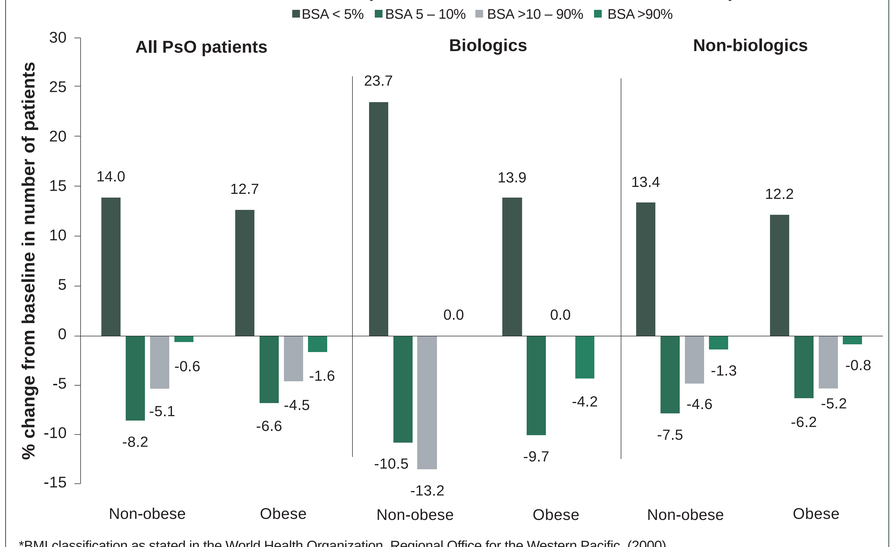
^Six months after treatment; *Non-biologics treated patients were used as control group; CI: Confidence Interval; i: inhibitors; IL: Interleukin; TNF: Tumor necrosis factor

Figure 1. Prevalence of new cases^ of cardiometabolic diseases based on disease severity (BSA) and treatment modalities



^Six months after treatment; BSA: Body surface area; i: inhibitors; IL: Interleukin; TNF: Tumor necrosis

Figure 2. Percentage change from baseline in number of patients stratified according to BSA and treatments (Obese vs Non-obese patients)



*BMI classification 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 change from baseline was calculated six months after treatment

DISCUSSION

- This study alluded to the increased risk of cardiometabolic diseases among Malaysian patients with higher PsO disease severity.
  - This corroborated the findings of Gelfand et al which reported severe PsO as an independent risk factor for myocardial infarction[3].
  - A study in the United Kingdom also found that the incidence of metabolic syndrome increased proportionately with worsening PsO disease severity.[4]
- Our study revealed that biologic and non-biologic treatment for PsO appeared to modify the risk of cardiometabolic diseases differently which calls for further investigations.
  - Anti-TNFα therapy has demonstrated contrasting results in influencing cardiometabolic risk.[5,6]
  - Anti-IL12/23 and anti-IL17 treatment have shown better improvement in coronary artery disease indicators compared to non-biologic therapy in observational studies.[7,8]
- Obesity appeared to reduce effectiveness of psoriasis treatment, with similar observations being made by Clark et al [9].

CONCLUSIONS

PsO patients exhibited risks of developing cardiometabolic diseases and the risk seemingly increased with disease severity. The prevalence of cardiometabolic diseases appeared lower among patients treated with biologics when compared with non-biologics. A patient's BMI may influence PsO treatment response.

REFERENCES

1. Lluís Puig et al.. Int. J. Mol. Sci. 2018, 19, 58
2. Paolo Gisondi. Journal of Clinical Dermatology volume 17, pages609–615(2016)
3. Gelfand, J.M. et al.. JAMA 2006, 296,1735–1741.
4. Langan SM, et al.. J Invest Dermatol. 2012.
5. Wu JJ, et al. Archives of dermatology. 2012;148(11):1244-50
6. Bissonnette R., et al.. J Invest Dermatol. 2017;137(8):1638-45
7. Elnabawi YA, et al. Cardiovascular Research. 2019;115(4):721-8.
8. Elnabawi YA, et al. JAMA Cardiology. 2019
9. Clark L, Lebwohl M.. JAAD.2008;58:443–6

Funding
This study was sponsored by the Ministry of Health, Malaysia and Novartis Corporation (M) Sdn Bhd, Malaysia

Acknowledgement
The authors would like to thank the Director General of Health, Malaysia for permission to present this poster and Vinod Goshamahal (Novartis) for design support

Poster presented at: Poster presented at 30th European Academy of Dermatology & Venereology (EADV) virtual Congress, September 29–October 02, 2021

Scan to download a copy of this poster