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The prevalence and the risk of allergic rhinitis in psoriatic patients: A systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202440077

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 18 April 2024 and was last updated on 18 April 2024.

INTRODUCTION

Review question / Objective We aim to determine the prevalence and association between psoriasis and allergic rhinitis.

Rationale Psoriasis is a common chronic inflammatory disease of the skin that involves multiple organ systems and leads to many comorbidities, such as psoriatic arthritis, psychiatric disorders, cardiovascular diseases, and metabolic syndrome.

Allergic rhinitis is one of the most common worldwide allergic diseases caused by the mucosal inflammation of the upper respiratory system after exposure to allergens. The causes of psoriasis and allergic rhinitis are complex multifactorial disorders, including genetic, environmental, and immunological factors.

The pathophysiology of psoriasis involves T helper (Th)1 and Th17 inflammatory response, while Th2 inflammatory response plays an essential role in atopic diseases, including allergic rhinitis. Despite different T-cell activations, recent studies have

revealed the correlation between both diseases by sharing some mechanisms and mediators in immunological pathways.

Consequently, this systematic review and meta-analysis aims to determine the prevalence and association between psoriasis and allergic rhinitis.

Condition being studied Psoriasis, Allergic rhinitis.

METHODS

Search strategy Six researchers will conduct systematic search strategies and independently search for published studies using 3 databases, including MEDLINE, EMBASE, and SCOPUS, from inception to December 2023.

Participant or population Patients with psoriasis who develop allergic rhinitis.

Intervention Patients with psoriasis.

Comparator Individuals without psoriasis.

Study designs to be included We will consist of prospective or retrospective cohort, case-control, or cross-sectional studies that completed the following criteria: (1) Patients with psoriasis as an exposure and individuals without psoriasis as a control, (2) Allergic rhinitis is the primary outcome of interest.

Eligibility criteria We will include the eligibility articles from these following criteria as follows: (i) types of study are prospective or retrospective cohort, case-control, or cross-sectional studies (ii) patients with psoriasis as an exposure and individuals without psoriasis as a control; (iii) allergic rhinitis is the primary outcome of interest. We will exclude review articles, case reports, case series, studies that involved patients with other types of allergies, studies with no abstract or available full-text, and duplicated published studies.

Information sources PubMed, EMBASE, and SCOPUS.

Main outcome(s) The risk of allergic rhinitis in psoriasis patients.

Additional outcome(s) The prevalence of allergic rhinitis in psoriasis patients.

Data management Six researchers will independently screen the titles and abstracts of the studies through Covidence. The selected studies will be retrieved to review the full-text articles. The information from the studies that fulfilled the inclusion criteria will be extracted. All of the conflicts during the procedures will be resolved through the discussion.

Quality assessment / Risk of bias analysis Two researchers will independently assess the quality of the included studies using the Newcastle-Ottawa Scale (NOS).

Strategy of data synthesis Extracted data will be meta-analyzed using the random effect model since allergic rhinitis and psoriasis display disease heterogeneity. The heterogeneity of the meta-analysis will be analyzed using I² statistics.

Subgroup analysis Subgroup analysis will not be conducted. Instead, we plan to study factors that may affect the pooled outcomes by meta-regression. Meta-regression analyses by type of studies, quality of studies, country region, sex, and diagnosis criteria for psoriasis and allergic rhinitis are planned a priori.

Sensitivity analysis Not performed.

Language restriction English.

Country(ies) involved Thailand.

Other relevant information None.

Keywords Psoriasis; Allergic rhinitis; Allergy.

Contributions of each author

Author 1 - Suvijak Untaaveesup - conception, acquisition, and elucidation of the data, draft the manuscript, and prepare the final version.

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Author 2 - Thipsukon Amnartpanich - conception, acquisition, and elucidation of the data, prepare the final version.

Author 3 - Nattawut Leelakanok - conception, elucidation of the data, statistical analysis, draft of the manuscript, critical revision of the manuscript.

Author 4 - Weerapat Owattanapanich - conception, elucidation of the data, statistical analysis, draft of the manuscript, critical revision of the manuscript.

Author 5 - Piyawat Kantagowit - conception, acquisition, and elucidation of the data, statistical analysis, draft of the manuscript.

Author 6 - Wichapol Dendumrongsup - conception, acquisition, and elucidation of the data.

Author 7 - Supawich Sornwanee - conception, acquisition, and elucidation of the data.

Author 8 - Walaorn Pratchyapruit - conception, draft of the manuscript, critical revision of the manuscript.

Author 9 - Wannada Laisuan - conception, draft the manuscript, critically emendation the manuscript, and prepare the final version.