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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: INPLASY2024120041

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 December 2024 and was last updated on 11 December 2024.

INTRODUCTION

Review question / Objective To investigate the association between heart failure and moderate-to-severe psoriasis.

Rationale Psoriasis is a systemic skin disease related to comorbidities including hyperlipidemia, hypertension, dyslipidemia, and heart failure from previous studies.

Therefore, this systematic review and meta-analysis desires to evaluate the association between heart failure and moderate-to-severe psoriasis.

Condition being studied Psoriasis, Heart failure.

METHODS

Search strategy Four investigators (S.U., A.B., N.J., and P.T.) will conduct systematic search strategies. Two databases, including MEDLINE and EMBASE, will be independently searched from inception date to September 2024.

Participant or population Patients aged 18 years or older who intended to develop heart failure.

Intervention Patients with moderate-to-severe psoriasis.

Comparator Individuals without moderate-to-severe psoriasis

- Patients with mild psoriasis
- Patients without psoriasis.

Study designs to be included Four study designs including prospective or retrospective cohort, case-control, and cross-sectional studies will be included.

Eligibility criteria Published articles achieving these criteria, as follows, will be enrolled: (i) four study designs including case-control, prospective or retrospective cohort, and cross-sectional studies (ii) participants are patients with moderate to severe psoriasis. (iii) the main outcomes are the risk of heart failure. Exclusion criteria are non-English published articles, and other types of study

designs encompassing review articles, case reports, and case series.

Information sources MEDLINE and EMBASE.

Main outcome(s) Heart failure outcome.

Additional outcome(s) None.

Data management Four investigators (S.U., A.B., N.J., and P.T.) will independently screen titles and abstracts through Covidence, an online literature-reviewing data management program. Studies that fulfilled inclusion criteria will be retrieved for the full-text articles. S.U. and A.B. will independently extract the following data, including author and year of publication, country, total number of participants, study duration and follow-up intervals, total number of psoriasis patients and their severity levels, study type, age, body mass index (BMI), diagnostic methods for psoriasis and heart failure, and the definition of moderate-to-severe psoriasis. Any disagreements will be discussed with P.P.

Quality assessment / Risk of bias analysis The risk of bias assessment in each included article will be assessed using the Quality In Prognosis Studies (QUIPS) tool. The quality assessment of evidence will be assessed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach.

Strategy of data synthesis We will use the random effect model using the metagen package in R program. Heterogeneity among the included studies will be assessed using the Cochrane Q test and the I² statistics. Publication bias will be evaluated using a funnel plot and Egger's regression test if the number of studies exceed 10.

Subgroup analysis We will perform subgroup analysis of sex, age, study design, study region, risk of bias, number of populations, type of analysis, and severity factors.

Sensitivity analysis Not perform.

Language restriction English.

Country(ies) involved Thailand.

Other relevant information None.

Keywords Psoriasis; Heart failure; Ventricular dysfunction; Meta-analysis.

Dissemination plans None.

Contributions of each author

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