INPLASY

# Associated Factors for the Occurrence of Rapidly Progressive Interstitial Lung Disease in Patients with Idiopathic Inflammatory Myopathies: A Systematic Review and Meta-analysis

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## ADMINISTRATIVE INFORMATION

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**Conflicts of interest -** None declared.

**INPLASY registration number:** INPLASY202540059

**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 April 2025 and was last updated on 17 April 2025.

## INTRODUCTION

**Review question / Objective** The aim of the present study was to explore the factors associated with the occurrence of RP-ILD in IIM patients.

**Condition being studied** In Web of Science, PubMed, Embase and Scopus databases, a comprehensive search was performed for English studies on IIM and RP-ILD published from inception date until October 16, 2024.

## METHODS

**Participant or population** 2099 idiopathic inflammatory myopathies with interstitial lung disease(IIM-ILD) patients.

**Intervention** IIM patients with RP-ILD.

**Comparator** IIM patients without RP-ILD.

**Study designs to be included** Retrospective.

**Eligibility criteria** The main inclusion criteria included the following: (1) retrospective and prospective studies; (2) DM, PM or CADM diagnosis based on the European League Against Rheumatism/American College of Rheumatology (EULAR/ACR) IIM classification criteria or Bohan and Peter's diagnostic criteria. The diagnosis of anti-synthetase syndrome (ASS) was established as positive for one of the five tested anti-synthetases antibodies (Jo-1, PL-7, PL-12, EJ and OJ), as well as at least one of triad, including myositis, arthritis and ILD. (3) the diagnosis of ILD was based on existing clinical guideline, and was made on the basis of respiratory symptoms, physical examination, high-resolution computed tomography (HRCT) scan abnormalities, and pulmonary function test results. (4) logistic

regression modeling was used to obtain the odds ratio (OR) and 95% confidence intervals (CI) of the factors associated with the occurrence of RP-ILD in IIM patients; (5) English literature.
Exclusion criteria: (1) duplicated literature; (2) case report, conference abstract, review or meta-analysis, animal or cell study, comment or letter, and other types of literature; (3) studies not related to IIM-ILD; (4) studies not using RP-ILD as an outcome event; (5) data could not be extracted; (6) literature not in English.

**Information sources** A comprehensive search was carried out for English studies published from inception date until October 16, 2024 in Web of Science, PubMed, Embase and Scopus databases.

**Main outcome(s)** Associated factors of occurrence of RP-ILD.

**Quality assessment / Risk of bias analysis** The Newcastle-Ottawa Scale (NOS) was applied for the quality of the included literatures.

**Strategy of data synthesis** The OR and 95% CI of the associated factors were collected as statistical effect sizes, and Cochran's Q statistic and inconsistency value (I2) were used to test the heterogeneity of the included studies. If $p < 0.05$ and $I2 \geq 50\%$, heterogeneity was significant, and pooled analyses were performed using random effects model and DerSimonian-Laird (DL) method. Otherwise, fixed effects model and inverse variance (IV) method were used.

**Subgroup analysis** Subgroup analyses were executed for different associated factors.

**Sensitivity analysis** Excluding one category of study at a time method was utilized for sensitivity analysis.

**Country(ies) involved** China.

**Keywords** Idiopathic inflammatory myopathy; rapidly progressive interstitial lung disease; occurrence; associated factors; anti-MDA5 antibody.

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