

# INPLASY

## Association of rheumatoid arthritis with the incident heart failure: a systematic review and meta-analysis

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### ADMINISTRATIVE INFORMATION

**Support** - None.

**Review Stage at time of this submission** - Data extraction.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202360056

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 June 2023 and was last updated on 19 June 2023.

### INTRODUCTION

**Review question / Objective** To investigate the association of rheumatoid arthritis with the incident heart failure.

**Condition being studied** Rheumatoid arthritis (RA) is an autoimmune disease with a worldwide lifetime prevalence of 1%, and more common in women, which accounts for 75% of all RA cases. RA is typically indicated by the presence of autoantibodies, including anti-cyclic citrullinated peptide and rheumatoid factor, years before the disease can be detected, and the most common clinical manifestations caused by these autoantibodies are distal joint pain and joint deformity caused by involvement of synovial joints. Current therapies for RA include antirheumatic drugs (DMARDs), anti-tumor necrosis factor-alpha inhibitors (e.g., adalimumab, etanercept, and infliximab) and non-tumor necrosis factor inhibitors (e.g., abatacept, rituximab, tocilizumab) (4). If untreated or poorly controlled, it may lead to interrupted physical function and increased

mortality owing to increased cardiovascular risk. Numerous studies have demonstrated that rheumatoid arthritis (RA) is related to increased incidence of heart failure, but there is lacking meta-analysis investigating the association of rheumatoid arthritis with the incident heart failure.

### METHODS

**Search strategy** #1: Arthritis, Rheumatoid[MeSH Terms]

#2: ((rheumatoid arthritis[Title/Abstract]) OR (arthritis[Title/Abstract])) OR (arthritis rheumatoid[Title/Abstract])

#3: (#1) OR (#2)

#4: Heart failure[MeSH Terms]

#5: ((((((((((Cardiac Failure[Title/Abstract]) OR (Myocardial Failure[Title/Abstract])) OR (Heart Decompensation[Title/Abstract])) OR (Decompensation, Heart[Title/Abstract])) OR (Heart Failure, Right-Sided[Title/Abstract])) OR (Right Sided Heart Failure[Title/Abstract])) OR (Congestive Heart Failure[Title/Abstract])) OR (Heart Failure, Congestive[Title/Abstract])) OR (Heart Failure, Left-

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Sided[Title/Abstract])) OR (Left-Sided Heart Failure[Title/Abstract])) OR (Left Sided Heart Failure[Title/Abstract])  
#6: (#4) OR (#5)  
#7: (#3) AND (#6).

**Participant or population** Rheumatoid arthritis.

**Intervention** Rheumatoid arthritis.

**Comparator** Non-rheumatoidarthritis.

**Study designs to be included** cohort studies.

**Eligibility criteria** observational studies investigate the association of rheumatoid arthritis with the incident heart failure.

**Information sources** We search studies from Pubmed, Medline, Embase and Web of Science.

**Main outcome(s)** Incident heart failure.

**Strategy of data synthesis** Data analysis were performed by statistical software. For dichotomous data, the HR and 95% CI were calculated. Heterogeneity was assessed using the chi-square test for Cochrane's Q statistic and calculating I<sup>2</sup>. The random-effects model was conducted when there was a significant heterogeneity with I<sup>2</sup> > 50% or p < 0.10. Otherwise, the fixed-effects model was used.

**Subgroup analysis** subgroup analysis was performed according to region, gender, definition of rheumatoid arthritis, and study quality.

**Sensitivity analysis** Sensitivity analysis was conducted by removing each study one by one.

**Country(ies) involved** China(Chengdu Fifth People's Hospital).

**Keywords** Rheumatoid arthritis, Systemic Lupus Erythematosus, Anemia,Meta-analysis.

#### **Contributions of each author**

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