INPLASY PROTOCOL

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None declared.

The efficacy and safety of IL Inhibitors, TNF-α Inhibitors, and JAK Inhibitor on ankylosing spondylitis: A Bayesian network meta-analysis of a "randomized, double-blind, placebo-controlled" trials

Tian, C[1]; Shu, JL[2]; Shao, WH[3]; Zhou, ZX[4]; Guo, HY[5]; Wang, JG[6].

Review question / Objective: **In this study, we conducted a Bayesian network meta-analysis to evaluate the efficacy and safety of interleukin (IL) inhibitors, tumor necrosis factor-alpha (TNF-α) inhibitors, and Janus kinase (JAK) inhibitors on ankylosing spondylitis (AS).The purpose of this study is to compare the effectiveness and safety of different interventions for treating AS to provide insights into the decision-making in clinicalpractice.**
Condition being studied: **Ankylosing spondylitis. Based on the Bayesian hierarchical model, we conducted a network meta-analysis using the gemtc package in R software (version 4.1.3) and Stata software (version 15.1). Cong Tian and Jianlong Shu contributed to the conception and design of the study and supervised the tweet classification. All authors drafted the manuscript. Wenhui Shao, Zhengxin Zhou, Huayang Guo and Jingang Wang contributed to data management and tweet classification. Cong Tian, Jianlong Shu and Zhengxin Zhou performed the statistical analysis. Cong Tian, Jianlong Shu, Wenhui Shao and Zhengxin Zhou reviewed the manuscript.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 27 September 2022 and was last updated on 27 September 2022 (registration number INPLASY202290117).

INTRODUCTION

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METHODS

Participant or population: Patients with ankylosing spondylitis (7522).

Intervention: interleukin (IL) inhibitors, tumor necrosis factor-alpha (TNF-α) inhibitors, and Janus kinase (JAK) inhibitors

Comparator: Placebo.

Study designs to be included: A Bayesian network meta-analysis of a "randomized, double-blind, placebo-controlled" trialsDatabases PubMed, Embase, Cochrane, and Web of Science were searched. We collected "randomized, double-blind, placebo-controlled" trials.

Eligibility criteria: This meta-analysis was conducted following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement.

Information sources: Databases PubMed, Embase, Cochrane, and Web of Science were searched from their inception to July 15, 2022.

Main outcome(s): Efficacy endpoints included Bath Ankylosing Spondylitis Functional Index (BASFI) scores, and the number of patients selected by the criteria of the Assessment of SpondyloArthritis International Society Criteria For 20%, 40% Improvement (ASAS20, 40), ≥20% improvement in 5 out of 6 ASAS domains (ASAS5/6), and Ankylosing Spondylitis Disease Activity Index50 (BASDAI50). Safety endpoints were the number of patients suffering from adverse events (AEs) and the mortality during the trial.

Quality assessment / Risk of bias analysis: Cochrane bias risk assessment toolThe funnel plot was drawn to evaluate the risk of bias across included studies.

Strategy of data synthesis: Based on the Bayesian hierarchical model, we conducted a network meta-analysis using the gemtc package in R software (version 4.1.3) and Stata software (version 15.1). We estimated relative risk (RR) with a 95% confidence interval (CI) for binary outcomes through a random-effects model. If the 95% CI includes 1, it indicates there is no statistically significant difference, and vice versa. There is heterogeneity selection random effect and combined effect quantity, and there is no heterogeneity selection fixed effect and combined effect quantity.

Subgroup analysis: NA.

Sensitivity analysis: The sensitivity analysis is carried out by using R software, and the sensitivity of the article is reflected by the change of the effect amount after deleting an article.

Country(ies) involved: China.

Keywords: IL Inhibitors, TNF-α Inhibitors, JAK Inhibitor, ankylosing spondylitis, Bayesian network meta-analysis.

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