



REVIEW

Immunogenicity of COVID-19 vaccines in adult patients with autoimmune inflammatory rheumatic diseases: A systematic review and meta-analysis

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Abstract

COVID-19 vaccines approved by the Food and Drug Administration have been studied mainly in healthy individuals and there is limited information on their immunogenicity in patients with autoimmune diseases. Therefore, the current systematic review and meta-analysis study, aimed to comprehensively investigate the immunogenicity of these vaccines in patients with autoimmune inflammatory rheumatoid diseases (AIRDs). A comprehensive literature search was performed on various databases, including Google Scholar, PubMed, Web of Science, EMBASE, and Cochrane Library, to select cohort and randomized clinical trial (RCT) studies up to January 2022. Also, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist protocol and the I^2 statistic were used for quality assessment and heterogeneity tests of the selected studies. Fixed and random-effects models were estimated based on the heterogeneity tests, and pooled data were determined as the ratio of mean (ROM) with a 95% confidence interval (CI). As a result, we found that vaccines can cause favorable immunogenicity and antibody response in vaccinated AIRD patients; however, older age and the concomitant consumption of conventional synthetic disease-modifying anti-rheumatic drugs (csDMARDs) and biologic DMARDs (bDMARDs) could significantly reduce the vaccine immunogenicity. Consequently, our findings revealed significant humoral responses (seropositive) in AIRD patients following the administration of COVID-19 vaccines.