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Abstract

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Efficacy and Safety of Tocilizumab in Systemic Sclerosis and associated Interstitial Lung Disease: a systematic review and meta-analysis of randomized controlled trials.

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Abstract

Background: Systemic sclerosis is a rare autoimmune disease affecting multiple organs. Interleukin-6 (IL-6) is thought to have a main role in the pathogenesis of SSc. Tocilizumab is an IL-6 inhibitor used in the treatment of SSc and interstitial lung disease (SSc-ILD).

Objectives: This meta-analysis aims at providing robust evidence regarding the efficacy and safety of tocilizumab in treating SSc and SSc-ILD.

Methods: Following the PRISMA guidelines, we conducted a literature search on electronic databases to identify the relevant randomized controlled trials (RCTs). The efficacy outcomes examined were percent predicted forced vital capacity (%pFVC) and modified Rodnan skin score (mRSS). The safety outcomes examined were cardiac disorders and serious adverse events (SAE). Pooled mean difference (MD), odds ratio (OR) and their 95% confidence intervals (CI) were calculated using inverse variance.

Results: We identified three RCTs with a total of 507 patients. Compared to placebo, tocilizumab achieved a higher %pFVC in SSc patients in general (MD = 4.1, 95% CI [-1.62, 9.81] and in the subgroup of SSc-ILD (MD = 7.07, 95% CI [6.09, 8.06]), they also had significantly lower mRSS scores (MD = -2.21, 95% CI [-4.08, 0.34]). In terms of safety, SSc who received tocilizumab had significantly lower cardiac disorders (OR = 0.24, 95% CI [0.07, 0.87]) and lower SAE (OR = 0.68, 95% CI [0.38, 1.21]).

Conclusion: SSc-ILD patients who received tocilizumab had significantly better %pFVC, mRSS and cardiac disorder outcomes compared to placebo. However, further RCTs need to be conducted as the available RCTs are limited.