

# A systematic review and meta-analysis on the safety and efficacy of tocilizumab in the management of COVID-19

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## Abstract

**Objective:** This systematic review and meta-analysis was aimed to evaluate the therapeutic benefits and safety of tocilizumab (TCZ) in treating severe coronavirus disease 2019 (COVID-19) and associated health complications. **Methods:** The electronic search was performed using PubMed, Scopus, CENTRAL (Cochrane Central Register of Controlled Trials (RCTs) and Google scholar databases to identify the randomized control trials. Mortality, incidences of ICU admission, need of mechanical ventilation (MV), length of stay in the hospital (LOS) and length of stay in the ICU (LOS-ICU) and the incidences of super-infection, bacteraemia, fungemia, pneumonia and pulmonary thrombosis were evaluated as the primary outcomes. The comparison will be between TCZ versus standard of care (SOC)/placebo. **Results:** Based on the inclusion criteria there were 24 retrospective studies involving 5686 subjects were included. The outcomes of the meta-analysis have revealed that the TCZ has reduced the mortality (Mantel-Haenszel (M-H), random effects risk difference (RE-RD) of -0.11 (-0.18 to -0.04), at 95% CI,  $p = 0.001$ ,  $I^2 = 88\%$ ) and increased the incidences of super-infections (M-H, RE-Risk ratio (RR) of 1.49 (1.13 to 1.96) at 95% CI,  $p=0.004$ ,  $I^2 = 47\%$ ). However, there is no significant difference in ICU admissions rate, need of MV, LOS, LOS-ICU, and incidences of pulmonary thrombosis compared to SOC/control. **Conclusion:** Based on the outcomes of the meta-analysis we can conclude that administration of TCZ would reduce the risk of mortality, and however there is no much difference observed between the TCZ and SOC/control groups in other parameters.

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Table 1. Description of included studies.doc available at <https://authorea.com/users/469900/articles/562426-a-systematic-review-and-meta-analysis-on-the-safety-and-efficacy-of-tocilizumab-in-the-management-of-covid-19>

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