

Pulse versus Non-pulse Steroid Regimens in Patients with Coronavirus Disease 2019: A Systematic Review and Meta-Analysis

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Introduction: Systemic steroids are associated with reduced mortality in hypoxic patients with COVID-19. However, there is no consensus on the doses of steroid therapy in these patients. Several studies showed that pulse dose steroids (PDS) could reduce the progression of COVID-19 pneumonia. However, data regarding the role of PDS in COVID-19 is still unclear. Therefore, we performed this meta-analysis to evaluate the role of PDS in COVID-19 patients compared to non-pulse steroids (NPDS).

Methods: Comprehensive literature search of PubMed, Embase, Cochrane Library, and Web of Science databases from inception through February 10, 2022 was performed for all published studies comparing PDS to NPDS therapy to manage hypoxic patients with COVID-19. Primary outcome was mortality. Secondary outcomes were the need for endotracheal intubation, hospital length of stay (LOS), and adverse events in the form of superimposed infections.

Results: A total of ten observational studies involving 3065 patients (1289 patients received PDS and 1776 received NPDS) were included. The mortality rate was similar between PDS and NPDS groups (RR 1.23, 95% CI 0.92-1.65, P=0.16). There were no differences in the need for endotracheal intubation (RR 0.71, 95% CI 0.37-1.137, P=0.31), LOS (MD 1.93 days; 95% CI -1.46, 5.33; P=0.26), or adverse events (RR 0.93, 95% CI 0.56-1.57, P = 0.80) between the two groups.

Conclusion: Compared to NPDS, PDS was associated with similar mortality rates, need for endotracheal intubation, LOS, and adverse events. Given the observational nature of the included studies, randomized controlled trials are warranted to validate our findings.