

**Title: Incidence and Outcomes of Acute Kidney Injury in COVID-19: A Systematic Review****Author(s): Ronith Chakraborty, Rupesh Raina****Affiliation:** Cleveland Clinic Akron General Medical Center

**Background & Objectives:** The recent worldwide pandemic of a new coronavirus, COVID-19 (SARS-CoV-2), has been a multidimensional problem that has left a detrimental worldwide impact on individuals of all ages and various organ systems. Typically, manifestation of kidney involvement is in the form of acute kidney injury (AKI); however, there is lack of consensus data regarding AKI epidemiology in COVID-19. Thus, this systematic literature review aims to bridge this knowledge gap. **Design, setting, participants & measurements:** Medline and Cochrane Library were systematically searched for literature related to AKI in COVID-19 patients of all ages. MedRxIV was searched for relevant unpublished manuscripts. Two reviewers independently assessed the literature on the incidence of AKI and mortality, extracting the need for kidney replacement therapy (KRT). **Results:** A total of 60 studies (n = 43,871 patients) were included in this review. The pooled incidence of AKI among COVID-19 patients was 19.45% (95% CI: 14.63% to 24.77%), while the pooled incidence of COVID-19 patients with AKI requiring KRT was 39.04% (16.38% to 64.57%). The pooled proportion of COVID+ patients was significantly lower at 8.83% (5.64% to 12.66%). The overall mortality of COVID-19 patients was calculated to be 17.71% (95% CI: 11.49% to 24.93%) while the mortality among COVID-19 patients with AKI was higher at 54.24% (95% CI: 44.70% to 63.63%). **Conclusion:** This review found significantly higher incidence and mortality rates in COVID-19 patients with AKI, especially those requiring KRT. This suggests that kidney involvement during COVID-19 is substantial, requiring additional studies to explore KRT treatments.