

IMPACT-Restart: the influence of COVID-19 on postoperative mortality and risk factors associated with SARS-CoV-2 infection after orthopaedic and trauma surgery

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Aims

The primary aim of this study was to assess the independent association of the coronavirus disease 2019 (COVID-19) on postoperative mortality for patients undergoing orthopaedic and trauma surgery. The secondary aim was to identify factors that were associated with developing COVID-19 during the postoperative period.

Methods

A multicentre retrospective study was conducted of all patients presenting to nine centres over a 50-day period during the COVID-19 pandemic (1 March 2020 to 19 April 2020) with a minimum of 50 days follow-up. Patient demographics, American Society of Anesthesiologists (ASA) grade, priority (urgent or elective), procedure type, COVID-19 status, and postoperative mortality were recorded.

Results

During the study period, 1,659 procedures were performed in 1,569 patients. There were 68 (4.3%) patients who were diagnosed with COVID-19. There were 85 (5.4%) deaths postoperatively. Patients who had COVID-19 had a significantly lower survival rate when compared with those without a proven SARS-CoV-2 infection (67.6% vs 95.8%, $p < 0.001$). When adjusting for confounding variables (older age ($p < 0.001$), female sex ($p = 0.004$), hip fracture ($p = 0.003$), and increasing ASA grade ($p < 0.001$)) a diagnosis of COVID-19 was associated with an increased mortality risk (hazard ratio 1.89, 95% confidence interval (CI) 1.14 to 3.12; $p = 0.014$). A total of 62 patients developed COVID-19 postoperatively, of which two were in the elective and 60 were in the urgent group. Patients aged > 77 years (odds ratio (OR) 3.16; $p = 0.001$), with increasing ASA grade (OR 2.74; $p < 0.001$), sustaining a hip (OR 4.56; $p = 0.008$) or periprosthetic fracture (OR 14.70; $p < 0.001$) were more likely to develop COVID-19 postoperatively.

Conclusion

Perioperative COVID-19 nearly doubled the background postoperative mortality risk following surgery. Patients at risk of developing COVID-19 postoperatively (patients > 77 years, increasing morbidity, sustaining a hip or periprosthetic fracture) may benefit from perioperative shielding.

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