

Increased Risk for Venous Thromboembolic Events in Patients Undergoing Pelvis and Lower Extremity Fracture Fixation Within 2 Weeks of COVID-19 Infection

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Purpose: During the height of the COVID-19 pandemic, urgent orthopaedic trauma cases continued even as elective surgeries were halted. The effects of COVID-19 on perioperative complications after orthopaedic trauma surgery remain poorly understood, however. We utilized the National Institutes of Health National COVID Cohort Collaborative (N3C) database to characterize the risk profile among patients undergoing pelvis and lower extremity fracture surgery during multiple time windows following COVID-19 infection.

Methods: We queried the N3C database of 17.4 million persons with 6.9 million COVID-19 cases for patients undergoing surgery for hip fractures, femur and knee fractures, or lower leg and ankle fractures. We stratified each group into initial documented COVID-19 infections within 3 time periods: 0-2 weeks, 2-6 weeks, or 6-12 weeks prior to surgery. All analyses were performed in the N3C Data Enclave Palantir platform.

Results: A total of 28,644 patients undergoing surgery for hip fractures, 22,981 for femur or knee fractures, and 40,681 for leg or ankle fractures were identified from the N3C cohort. For patients undergoing surgery within 2 weeks of COVID-19, the risk of venous thromboembolic events (VTE) was elevated in fracture fixation of the hip (odds ratio [OR] 1.45, 95% confidence interval [CI] 1.04 to 2.02), femur/knee (OR 1.52, 95% CI 1.01 to 2.38), and leg/ankle (OR 2.41, 95% CI 1.62 to 3.60). The risk of sepsis was increased in leg/ankle (OR 1.66, 95% CI 1.04 to 2.63). At 2-6 weeks after COVID, there were no significant differences in any complication. At 6-12 weeks after COVID, VTE risk was increased for femur/knee (OR 2.67, 95% CI 1.15 to 6.19). There were no differences in the rate of surgical site infections or renal complications at any time point.

Conclusion: Patients undergoing pelvis and lower extremity fracture fixation are at increased risk for perioperative VTE and sepsis. Unlike many elective surgeries, pelvis and lower extremity fracture fixation often must proceed regardless of COVID status, but additional measures such as more aggressive VTE chemoprophylaxis protocols may be warranted for patients with COVID-19.

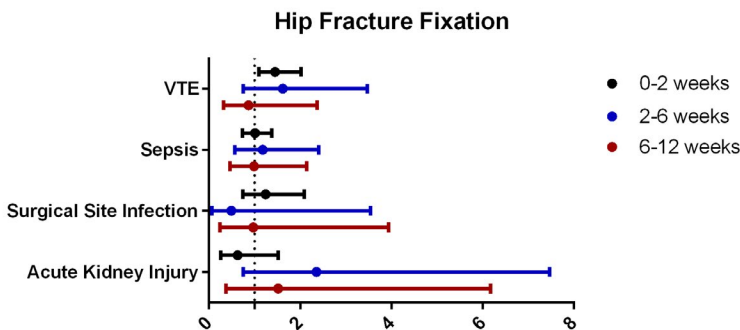


Figure 1: Odds ratios for postoperative complications in patients with a confirmed COVID-19 diagnosis within 0 to 2, 2 to 6, or 6 to 12 weeks prior to surgery, as compared to controls without a positive COVID-19 test for the 90 days prior to surgery. Error bars represent 95% confidence interval.

See the meeting website for complete listing of authors' disclosure information. Schedule and presenters subject to change.