

Neuraxial Anesthesia Reduces the Risk of Postoperative Delirium and Mortality in Hip Fracture Patients

Lauren Nowak, PhD; Michael D. McKee, MD; Emil H. Schemitsch, MD
London Health Sciences Centre, London, Ontario, CANADA

Purpose: The aim of this study was to assess the 30-day morbidity, mortality, and other targeted hip-fracture metrics based on anesthesia type used during hip fracture surgery.

Methods: We merged all hip fracture patients from the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) hip fracture data (a more comprehensive set of variables collected on low-energy hip fracture patients) with the standard 2016-2017 NSQIP data. We ascertained patient demographics, anesthesia type (general anesthesia, neuraxial anesthesia, or a combination of general and neuraxial anesthesia), and 30-day major and minor complications, mortality, delirium, pressure sores, reoperation, or readmission. We used multivariable regression to determine if outcomes differed depending on anesthesia type.

Results: We included 4970 hip fracture patients, 3620 (72.8%) of whom received general anesthesia only (G), 607 (12.2%) who received a combination of neuraxial and general anesthesia (GN), and 733 (14.7%) who received only neuraxial anesthesia (N). Patients in the N group were more likely to be in a standardized hip fracture unit and receive medical comanagement, while patients in the G group were more likely to present with comorbidities. Patients in the G group had a nonsignificantly higher unadjusted proportion of major complications (7.1%) compared to the GN (5.6%) and N (5.9%) groups. In contrast, patients in the GN group had a nonsignificantly higher unadjusted proportion of minor complications (8.6%) compared to the G (8.1%) or N (7.2%) groups. Further, the unadjusted proportion of patients who died within 30 days of their fracture was significantly greater in the G (4.6%) and GN (4.6%) groups (vs the N group [2.5%]). Similarly, the unadjusted proportion of patients who developed postoperative delirium was significantly higher in the G (27.5%) and GN (26.5%) groups compared to the N group (22.9%). Following covariable adjustment, patients in the N group had a significantly lower odds of 30-day mortality (0.26 [0.10-0.67]) and developing postoperative delirium (0.78 [0.62-0.98]) compared to the G group. We found no significant association between anesthesia type and major or minor complications, postoperative pressure sores, readmission, or reoperation.

Conclusion: Neuraxial anesthesia appears to be associated with a lower odds of 30-day death and postoperative delirium following hip fracture fixation. While these findings suggest a benefit to neuraxial anesthesia in hip fracture management, one should still take into account the patients and their unique spectrum of comorbidities that may place them at higher risk when deciding on anesthesia type.