

# General compared with neuraxial anesthesia for total hip and knee arthroplasty

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Spinal anesthesia has been used for total hip replacement (THR) since 1970s (1). In recent decades and in light of growing body of evidence supporting better outcome of THR and total knee replacement (TKR) with the use of neuraxial anesthesia, this type of anesthesia has become more popular among anesthesiologists and surgeons (2-7). A recent study by Memtsoudis *et al.* (7), using the Premier database and reviewing 382,236 joint arthroplasty procedures, revealed that general anesthesia was by far the most frequent type of anesthesia used for joint arthroplasty as approximately 75% of the procedures were performed under general anesthesia. So it seems that the use of neuraxial anesthesia for total joint arthroplasty (TJA) is still limited to high volume specialized centers and less frequently used in other centers. The reason for the lack of universal adoption of regional anesthesia may be many. Barriers such as patient's fear of spinal anesthesia, the lack of adequate experience or the lack of familiarity with the regional anesthesia techniques, and administration of perioperative anticoagulation to patients that prevents the use of regional anesthesia may be some of the factors (7).

There is ample evidence that supports the superior outcome of neuraxial anesthesia, in terms of reduced perioperative complications and mortality compared to general anesthesia for patients undergoing THR or TKR (4,5,7-10). In a study by Hunt *et al.* (9) using the National Joint Registry for England, Wales and Northern Ireland, spinal anesthesia, but not epidural anesthesia, reduced the risk of 90-day mortality after THR (10). Similarly, the study by Memtsoudis *et al.* (7) demonstrated that neuraxial anesthesia was associated with a lower risk of

30-day mortality and perioperative complications in joint arthroplasty patients.

Lower rate of perioperative morbidity and mortality using the neuraxial anesthesia is most likely due to the lower rate of perioperative complications particularly thromboembolic events, cardiac issues (4) and deep surgical site infection (SSI) (5). It has been well defined that neuraxial anesthesia reduces perioperative blood loss, and the need for subsequent red blood cell (RBC) transfusion, because of its ability to provide hypotension through vasodilatation (3,11). In addition, neuraxial anesthesia allows for optimal muscle relaxation that facilitates expeditious surgery and reduction in operative time. This is particularly important as increased operative time and allogeneic transfusion are risk factors for SSI in TJA patients (12). General anesthesia on the other hand may result in hemodynamic fluctuations (uncontrolled hypotension and hypertension), arrhythmia, and also affect the coagulation pathway that can result in an increased risk of thromboembolic events and cardiac arrest (4). There are other beneficial effects of neuraxial anesthesia. Patients are likely to have better early postoperative cognitive function (13), and better postoperative pain control that leads to a reduction in opioid consumption and consequently lower risk of nausea/vomiting and ileus (6).

In conclusion, there is ample evidence to support the notion that administration of neuraxial anesthesia during TJA is associated with lower morbidity and mortality. The numerous beneficial effects of neuraxial anesthesia should prompt the orthopedic and anesthesia community to seek wider adoption of this anesthesia technique for patients undergoing TJA.

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## Footnote

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