

**Peripheral Nerve Blocks Are Associated with Greater Knee Range of Motion in the Early Postoperative Period in Tibial Plateau Fracture Patients**

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**Purpose:** Spinal anesthesia has been associated with decreased pain levels and improved function when compared to general anesthesia in tibial plateau fracture patients in the early postoperative period. The purpose of this study is to determine if the use of peripheral nerve blocks in the operative management of tibial plateau fractures is associated with better outcomes when compared to the use of spinal and general anesthesia.

**Methods:** Over 15 years, 400 patients who underwent operative repair for a tibial plateau fracture and had at least 12-month follow-up met inclusion criteria and formed the basis of this report. Patients were grouped into cohorts based off of the anesthetic method used during surgery: peripheral nerve block in combination with conscious sedation or general anesthesia (B), general anesthesia alone (G), or spinal anesthesia alone (S). Patients were matched at a 1:1:1 ratio along possible confounding covariate parameters of injury mechanism (high vs low energy) and fracture pattern according to the Schatzker classification system. Pain levels and Short Musculoskeletal Function Assessment (SMFA) scores were assessed at 3 months, 6 months, 12 months, and beyond. Radiographic, clinical, and functional outcomes were also assessed at follow-up. Statistics were generated using  $\chi^2$  analysis for categorical variables and analysis of variance tests for numerical variables controlling for age and body mass index (BMI).

**Results:** Age and BMI differed between the cohorts, with patients in the B cohort being younger ( $55.57 \pm 10.1$  vs  $65.44 \pm 9.8$  vs  $59.51 \pm 9.7$ ) and having a lower BMI ( $27.47 \pm 6.3$  vs  $31.66 \pm 7.6$  vs  $28.03 \pm 5.9$ ) ( $P < 0.05$ ). Average time from injury to surgery was similar between groups ( $p > 0.05$ ). The patients in our study did not experience any anesthesia-related complications or neurological complications. While patients in the B cohort had a shorter length of stay, this finding was not significant after adjusting for age and BMI ( $P > 0.05$ ). However, those in the B cohort were more likely to be discharged to home ( $P < 0.05$ ). At 3 and 6 months, patients in the B cohort has better knee range of motion (ROM) ( $P < 0.05$ ). Pain scores were similar. Lastly, no differences were found between the 3 cohorts with regard to SMFA scores, complication rate, and reoperation rate ( $P > 0.05$ ).

**Conclusion:** Tibial plateau fractures can be repaired under any of the 3 types of anesthesia. The utilization of peripheral nerve blocks was associated with improved knee ROM in the early postoperative period. Similar to other studies, our results suggest that regional anesthesia is safe and effective.