

**Efficacy of Immediate Postoperative Pain Control Modalities After Ankle Fracture Fixation: A Multimodal Comparison**

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**Background/Purpose:** Postoperative pain control following orthopaedic extremity fracture surgery continues to be a complex problem. Peripheral nerve blocks, general anesthesia (GETA), and continuous infusion of anesthetic modalities have all been detailed in the literature with varying results. This study sought to contrast the short-term efficacy of these three modalities in controlling postoperative pain for patients undergoing internal fixation for ankle fractures.

**Methods:** Data from two separate IRB-approved prospective blinded randomized controlled trials were compiled for analysis. In one cohort, 50 patients were consented and randomized to general anesthesia without regional anesthesia (GETA), or general anesthesia with a popliteal sciatic nerve block (SNB). In the second cohort, 50 patients were consented and randomized to receive a single-shot popliteal sciatic nerve block or a popliteal sciatic nerve catheter receiving continuous anesthetic infusion for 48 hours (CNB). In both cohorts, visual analog scale (VAS) pain levels were tracked in the postanesthesia care unit. Pain assessments for comparison were available at the 2, 8, 12, 24, and 48-hour postoperative time points in both cohorts. Chi-square tests were used to compare categorical variables and Student t tests to compare continuous variables between groups.

**Results:** CNB patients demonstrated significantly lower VAS pain scores at the 2-hour postoperative period compared to the GETA group (P <0.001) and SNB (P <0.001). At the 8-hour

POSTER ABSTRACTS

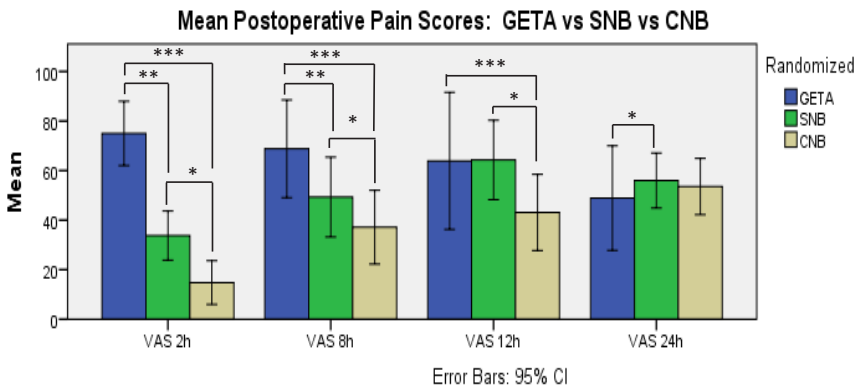


Figure 1: Average visual analog scale pain scores by hours postoperatively for SNB, GETA, and CNB groups. Asterisk represents statistical significance between groups (p-value<0.05) Error bars represent 95% Confidence Interval.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.

postoperative period, CNB patients still had significantly lower VAS scores than GETA ( $P = 0.007$ ). Additionally, CNB patients had significantly lower pain scores at 12 hours compared to SNB ( $P = 0.015$ ). The SNB group had significantly lower pain scores at the 2-hour time period compared to GETA patients ( $P < 0.001$ ), but higher scores at the 24-hour period ( $P = 0.045$ ). At all postoperative time points mean postoperative pain scores were lower in the CNB group versus the SNB and GETA groups.

**Conclusion:** Patients treated with continued infused regional anesthetic for pain control experienced less pain in the first 12 hours than GETA and SNB patients in this study. While an SNB and CNB infusion are superior modalities compared to GETA for immediate postoperative pain control at 2 and 8 hours, the SNB group experience a “rebound phenomenon” at 12-24 hours where they have a sudden increase in pain after the block diminishes. By 24 hours, all anesthetic modalities show no clinically significant difference.