Procedural Sedation Compared to Intra-articular Block for Closed Reduction of Ankle Fractures

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Purpose: Our objective was to compare the safety of procedural sedation to intra-articular block, evaluate efficiency and efficacy for each method, and determine effects of physician specialty on these outcomes.

Methods: An initial retrospective EMR (electronic medical record) chart review utilizing CPT codes consistent with ankle fracture requiring manipulation was performed for patients seen in an Emergency Department (ED) of a Level I trauma center from 2005-2016. The primary outcome was rate of successful reduction. Several secondary outcome measures were defined: reduction attempts, time until successful reduction, time spent in the ED, rate of hospital admission, and adverse events. Continuous outcome measures were compared using a 2-sample t test if the data followed a normal distribution; otherwise a nonparametric (Mann-Whitney) test was used to compare such differences. Categorical outcome measures were compared utilizing chi-square tests.

Results: After exclusion criteria were applied, our study included 114 patients who underwent procedural sedation and 221 patients who received an intra-articular block. There was no significant difference in age, gender, body mass index, or American Society of Anesthesiologists (ASA) score between patients receiving either form of analgesia. 64% of patients receiving procedural sedation sustained a fracture dislocation compared to 33% of patients receiving intra-articular block ($P < 0.001$). Rate of successful reduction, number of reduction attempts, time spent in the ED, and rate of hospital admission was equivalent between both groups. One patient required intubation after procedural sedation (0.9%). Orthopaedic surgeons achieved higher rates of successful reduction in one attempt compared to ED providers ($P > 0.007$).

Conclusion: Both intra-articular block and procedural sedation are excellent options for analgesia that result in high rates of successful closed reduction of ankle fractures with adequate safety.

See pages 401 - 442 for financial disclosure information.