

Preoperative Patient and Institutional Factors Influence Anaesthetic Type in Foot and Ankle Surgery

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Introduction/Purpose: Lower-extremity orthopaedic procedures may be performed under regional or general anaesthesia, or a combination of techniques. There is a growing body of evidence outlining benefits of regional anaesthesia, with meta-analyses of randomized controlled trials and registry data suggesting decreases in surgical site infections, thromboembolism, cardiopulmonary complications and length of stay associated with regional anaesthesia. In patients undergoing foot and ankle surgery specifically, the literature demonstrates decreased pain, nausea, vomiting, opioid use and unplanned hospital admission.

This supports increased use of regional anaesthesia in patients undergoing foot and ankle surgery. However, the type of anaesthetic used is dependent on surgeon, patient, anaesthesiologist and institutional factors. The purpose of this study is to investigate pre-operative factors that predict anaesthetic type in patients undergoing foot and ankle surgery.

Methods: Data was collected prospectively on 888 patients undergoing foot or ankle surgery at a single institution. The primary method of anaesthesia for each procedure was recorded. Ten additional variables were recorded and analyzed: age, BMI, gender, diabetes, ASA status, procedure length, procedure start time, elective vs. trauma procedure, primary vs. revision procedure and preoperative anticoagulation. Logistic regression modelling was performed to identify factors that independently predict the type of anaesthetic used.

Results: General anaesthetic was employed in 280 patients (32%), and regional anaesthesia was the primary anaesthetic type used in 608 (68%). Logistic regression modelling demonstrated that factors that independently predict use of general anaesthetic include younger age ($p < 0.0001$; Odds Ratio 0.97/year), male sex (0.0033; 1.618), procedure start time (0.0319; 1.066/hour) and length of procedure (< 0.0001 ; 1.520/hour). Patients who underwent general anaesthetic had a mean length of procedure of 108 ± 77 minutes, whereas patient provided with regional anaesthesia had a mean length of procedure 83 ± 64 minutes.

Conclusion: With increasing evidence supporting use of regional anaesthesia, it is important to identify modifiable factors that contribute to patients receiving alternative treatments. Since later procedure start time was identified as an independent predictor of general anaesthetic use, there may be a role for identifying patients at increased risk of complications associated with general anaesthesia and scheduling earlier start times. Furthermore, while it is logical that extended length of procedure is a contraindication to regional anaesthesia, the mean procedure time of 108 minutes in the general anaesthesia group indicates that many of these patients should still be candidates for regional anaesthesia.

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