

**Outcomes and Predictors after Suprapatellar Nailing for Diaphyseal and Metaphyseal Fractures of the Tibia: Multivariable Analysis of 293 Consecutive Cases**

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**Purpose:** Intramedullary nailing of tibial fractures is one of the most common procedures in orthopaedic surgery. It can be technically demanding in proximal or distal fractures, which may be facilitated using semi-extended approaches. The aim of this study is to identify outcomes and their predictors using a semi-extended suprapatellar approach for tibial fracture nailing.

**Methods:** This was a retrospective cohort of 293 patients who underwent intramedullary nail fixation of a tibial fracture through a suprapatellar approach, considering a postoperative follow-up of 1 year. Data on patients' baseline characteristics, injuries, treatments, and outcomes regarding alignment, fracture union and complications were recorded. For multivariable analysis, hierarchical binary (logistic) regression analysis was performed.

**Results:** Mean patient age was 47.7 years (standard deviation [SD] 18.9), with 42A1 the most frequent fracture pattern (n = 98, 33.5%). Correct or anatomical alignment ( $\leq 5^\circ$  in both planes) was achieved in 272 (92.8%) of the patients. On multivariate analysis, surgical delay  $\geq 7$  days (odds ratio [OR] = 1.3) and age over 50 years (OR = 3.2, 95% confidence interval [CI] = 1.2-8.3) were found as predictors of fracture malalignment. Fracture healing was achieved in 97.6% and reoperation rate was 6.14%. Overall complication's predictors were proximal fracture (OR = 2.8, 95% CI = 1.1-7.2), temporary external fixation (OR = 2.4, 95% CI 1.2-4.9), and fracture malalignment (OR = 2.9, 95% CI = 1.0-7.9).

**Conclusion:** The suprapatellar approach is a safe and useful technique for treating tibial fractures, leading to no less than correct reduction in almost all patients and achieving a high fracture-healing rate, at very low rates of complications. Pre- and postoperative predictors identified must be considered to improve outcomes while treating these fractures.