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## **Comparison of Risk Factors and Postoperative Outcomes in Syndesmosis Injuries with Various Ankle Fracture Types**

### **Background**

There is a lack of understanding of risk factors and postoperative outcomes of syndesmotic injuries with singular versus multi-part fractures.

### **Methods**

A retrospective analysis was done between 2008 and 2016, utilizing the American College of Surgeons National Surgical Improvement Program database. Patients with open reduction and internal fixation of isolated lateral malleolus fractures, bimalleolar fractures, or trimalleolar fractures were identified.

### **Results**

A total of 2045 patients underwent syndesmotic fixation. Subjects with bimalleolar or trimalleolar fractures were more likely than those with unimalleolar fractures to be Caucasian (Odds Ratio [OR]=1.5 and 1.9), female (OR=1.8 and 2.9), above 65 years of age (OR=1.6 and 1.9) or have an American Society of Anesthesiologists (ASA) grade III (OR=1.5 and 1.4) (all,  $P \leq .028$ ). Patients with a unimalleolar fracture were more likely than those with bimalleolar or trimalleolar fracture to be male (OR=1.8 and 2.9), African American (OR=1.5 and 1.8), under the age of 30 (OR=1.4 and 1.8), or present with an ASA grade I (OR=1.6 and 2.0) (all,  $P \leq .004$ ). Subjects with bimalleolar or trimalleolar fractures were more likely than those with unimalleolar fractures to have lengthier hospital stays (OR=1.8 and 2.1), while patients with trimalleolar fractures were more likely than those with unimalleolar fractures to have hypoalbuminemia (OR=2.3), develop a complication (OR=2.2) or an open wound (OR=1.9), or to be readmitted (OR=2.2) (all,  $P \leq .036$ ).

### **Conclusion**

Comorbidity rates and adverse postoperative outcomes significantly increase as the number-part fractures increased in syndesmotic fixation patients. Risk factors also vary across fracture severity