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Impact of Smoking on Postoperative Outcomes of Syndesmotic Fixations: An ACS NSQIP Analysis 2008-2016

Introduction: The high prevalence of smoking in the United States requires an assessment of demographics and implications of smoking in the context of orthopaedic procedures, such as syndesmotic fixations. The objective of this study is to assess the impact of smoking on outcomes and complication rates in a population of patients undergoing syndesmotic fixation.

Methods: The ACS-NSQIP database was queried for syndesmotic fixations (CPT: 27829) between 2008 and 2016 . Patients were categorized into smoking and non-smoking groups. The smoking group was 1:1 propensity score matched (PSM) to gender, age, and estimated probability of mortality. Univariate analysis was performed and multivariable logistic regression models were used to analyze the risk factors for postoperative complications.

Results: 3358 patients were isolated. PSM yielded 778 smokers and 778 non-smokers. Amongst study participants, mean age was 38.6 years, mean BMI was 32.3 kg/m2, 63.6% were male, and 62.0% were white. Smokers had lower BMI (31.7 vs. 32.9;p=0.004) and higher rates of COPD (3.8% vs. 1.3%;p=0.001), postoperative complications (4.2% vs. 2.4%;p=0.048), readmission (3.0% vs. 1.1%;p=0.008), and reoperation (3.2% vs. 0.9%;p=0.001) than non-smokers. Regression models demonstrated smoking was associated with adverse events (OR:1.7 [1.0-2.9]; p=0.034) and postoperative complications (OR:2.1 [1.1-3.9];p=0.020). Furthermore, smokers showcased higher rates of readmission (OR:2.9 [1.3-6.3];p=0.009) and reoperation (OR:4.0 [1.6-9.6]; p=0.002) (Table 1).

Conclusions: In patients undergoing syndesmotic fixation surgery, smoking was associated with several indicators of worse postoperative outcomes, and comorbidities such as COPD. These results reinforce the negative consequences of smoking and support the need for preoperative risk assessment and counseling in syndesmotic fixation candidates.