

Negative Impact of Tobacco on Clinical and Functional Outcomes Following Ankle Fracture

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Purpose: Tobacco use has been associated with complications and poor outcomes after orthopaedic injuries. The purpose of this study was to assess the impact of current and former cigarette smoking on clinical, radiographic, and functional outcomes for patients following ankle fracture. We hypothesized that tobacco users would have more complications and worse patient-reported outcomes.

Methods: Smoking history was evaluated in patients who were treated surgically for an acute ankle fracture between 2006 and 2012 at a single Level I trauma center. Medical comorbidities were documented including diabetes, vascular disease, and immune compromise. Clinical outcomes, including early and late complications and need for secondary operations, were reviewed. Social outcomes, such as return to employment and ability to work at full capacity, were also assessed. Patients with >6 months of radiographic follow-up were evaluated for development of chronic pain and posttraumatic arthrosis (PTA). Functional outcomes were assessed using the Foot Function Index (FFI) and Short Musculoskeletal Function Assessment (SMFA) more than 4 years after the injury. For both FFI and SMFA, higher scores indicate worse outcome.

Results: 690 patients were included (47.4% male). Smoking history at the time of injury was categorized as current (n = 324), former (n = 93), and non-smoker (n = 273). Mean ages for current, former, and non-smokers were 42.0, 55.7, and 44.2 years (P <0.0001, younger for current smokers), respectively, and mean body mass index was 29.3, 34.3, and 32.8 (P <0.0001, lower for current smokers). Former smokers were more likely to have medical comorbidities than current smokers and non-smokers (68.5% vs 33.1% vs 44.4%, P <0.0001), respectively. Current smokers were more likely than former smokers and non-smokers to report chronic pain requiring prescription pain medicines (16.7% vs 13.9% vs 4.0%, P <0.037). Former smokers had a greater likelihood than current smokers and non-smokers of having an early complication (16.5% vs 7.2% vs 8.4%, P = 0.028). Patients with any history of smoking had worse FFI scores (3.7 vs 3.1), SMFA Dysfunction (32.6 vs 26.9), and SMFA Bothersome scores (33.1 vs 25.2).

Conclusion: Former smokers were more likely to have comorbidities. However, after accounting for baseline differences, patients with prior or current smoking history at the time of injury had a greater likelihood than non-smokers to have early and late complications, and a greater likelihood to use prescription pain medicines for chronic ankle pain. Patients with any history of smoking had worse FFI and SMFA scores.