Is Cigarette Use Associated with Increased Complication Rates and Worse Functional Outcomes Following Total Ankle Arthroplasty?

Presenting Author:
Alexander J. Lampley, MD

Additional Authors:
Christopher E. Gross, MD, Cynthia Green, PhD, James K. DeOrio, MD, Samuel B. Adams, Jr, MD, Mark E. Easley, MD, James A. Nunley, MD

Category: Ankle

Keywords: Total ankle arthroplasty, Tobacco, cigarette use

Introduction/Purpose: Tobacco use is a known risk factor for increased perioperative complications rates and having worse functional outcomes in many orthopaedic procedures. To date, no study has elucidated the effect of cigarette smoking on complications or functional outcomes scores after total ankle arthroplasty (TAA). The purpose of this study is to compare the rate of perioperative complications and outcome scores in nonsmokers, former smokers, and current smokers.

Methods: We retrospectively reviewed the records of 642 patients who had TAA between June 2007 and February 2014 with a known smoking status. These patients were separated into three groups based on their smoking status: 34 current smokers, 249 former smokers, and 359 nonsmokers. Outcome scores and perioperative complications which included wound complications, talar component subsidence, periprosthetic infection, and periprosthetic bone cyst were compared between the groups.

Results: When compared to nonsmokers, active smokers had a statistically significant increased risk of wound complications (Hazard ratio [HR] 3.5; p=0.03). Although the active smokers had an increased rate of talar component subsidence (HR 1.6; p=0.66) and persistent pain (HR 1.4; p=0.35), these findings were not statistically significant. Although all groups demonstrated improvement in outcome scores at 1 year and 2 year follow up compared to their preoperative scores, the active smokers showed statistically significant less improvement in their outcome scores than the nonsmokers and former smokers at 1 and 2 year follow up. Furthermore, there was no significant difference in the outcome scores or complications when comparing the nonsmokers to the former smokers.
**Conclusion:** Patients with tobacco use undergoing TAA have a higher rate of perioperative complications and worse outcome scores compared to nonsmokers and former smokers. Furthermore, tobacco cessation appears to reverse the effects of smoking which allows TAA to be an effective and safe procedure for providing pain relief and improving function in former smokers as they have perioperative complication rates and outcomes similar to nonsmokers.