

## **Cotinine Testing Improves Smoking Cessation Prior to Total Joint Arthroplasty**

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**Introduction:** Patients who are actively smoking at the time of primary joint arthroplasty (TJA) are at an increased risk of perioperative complications. Serum cotinine testing is a sensitive and specific method to verify abstinence from smoking and may therefore improve a patient's chance of smoking cessation. The purpose of this study was to assess whether cotinine testing improves the self-reported quit-rate among smokers before TJA.

**Methods:** Our hospital performs a high volume of TJAs and documents smoking status at each clinic visit (at six-month intervals), as well as at the time of surgery through an institutional total joint registry. This information was used to identify all self-reported smokers (regularly cigarette smoking within 1 year of TJA) who underwent unilateral TJA from 2007 to 2018. Patients who underwent cotinine serum testing within one month before surgery were then separated from the cohort and compared to the smokers who did not undergo cotinine testing.

**Results:** Of the 28,758 primary TJAs identified, 8.8% (2,514) were smokers. Serum cotinine testing was obtained on 103 of these patients. The abstinence rate (by means of self-reporting) before surgery significantly improved from 15.8% to 28.2% in the untested versus cotinine-tested groups, respectively ( $p=0.005$ ). Among patients who underwent cotinine testing, 77% were negative (abstinent). Among patients who stated they had quit smoking, 15% still had positive cotinine tests.

**Conclusions:** Smoking cessation remains a major challenge in contemporary TJA practices despite a concerted effort and sundry of tools to help patients quit. Our findings suggest that cotinine testing significantly improves the self-reported quit rates of smokers before surgery and helps identify the 15% who falsely report abstinence to ensure appropriate counseling of inherent risks. This simple, reliable, and relatively inexpensive test should therefore be considered as a valuable adjunct in helping smokers quit before surgery.