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What is the Impact of Smoking on Revision Total Hip Arthroplasty?

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Introduction: There is a paucity of literature evaluating the impact of smoking on revision arthroplasty procedures. The purpose of this study was to identify the effect of smoking on complications after revision total hip arthroplasty (THA).

Methods: We queried the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database to identify patients who underwent revision THA between 2006 and 2014. Patients were divided into current smokers and nonsmokers according to NSQIP definitions. Each cohort was compared in terms of demographic data, preoperative co-morbidities and operative time. Multivariate logistic regression analysis was utilized to adjust for confounding variables and calculate adjusted odds ratios (OR) and associated 95% confidence intervals (95% CI) for the outcomes of any wound complication, deep infection and re-operation within 30-days of revision TKA.

Results: In total, 8,327 patients had undergone a revision TKA procedure. Of these patients, 14.7% were current smokers and 85.3% were nonsmokers. Univariate analyses demonstrated that smokers had a higher rate of any wound complication (4.1% vs 3.0%, p = 0.04), deep infection (2.0% vs 1.0%, p = 0.003) and re-operation (6.9% vs 4.8%, p = 0.003) compared to nonsmokers undergoing revision THA. Multivariate analysis controlling for confounding demographic, comorbidity and operative variables identified current smokers as being at a significantly increased risk of deep infection (OR 1.6, 95% CI 1.04-2.36) and re-operation (OR 1.4, 95% CI 1.03-1.86) after revision THA.

Conclusion: This study demonstrates that smoking significantly increases the risk of infection and re-operation after revision THA. The results are even more magnified for revision procedures compared to published effects of smoking on primary THA complications. Further research is needed regarding the impact of smoking cessation on mitigation of these observed risk.

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