

Impact of Tobacco Smoking on 1-Year Mortality Following Total Hip and Total Knee Arthroplasty Among Rheumatoid Arthritis Patients – a Danish Cohort Study Using Nationwide Health Care Registers

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Background/Purpose:

Tobacco smoking and rheumatoid arthritis (RA) are independent risk factors for short-term complications following total hip and total knee arthroplasty (THA/TKA). We aimed to investigate the impact of smoking on 1-year post-operative mortality in RA patients undergoing THA/TKA.

Methods:

Nationwide register-based cohort study from Denmark from 2000-14. The study population was RA patients (diagnosed according to either ACR 1987 or ACR/EULAR 2010 criteria) registered in the Danish rheumatology register (DANBIO) and in the linked Danish Hip or Knee Arthroplasty Registers with a first elective THA/TKA surgery. Information on smoking status (exposure), DAS28, HAQ-DI, biological and conventional synthetic DMARD (bDMARD and csDMARD) and glucocorticoid treatment within 90 days preceding surgery (confounders) was gathered from DANBIO. Information on pre-existing comorbidities and mortality data (outcome) was obtained by linkage to the Danish National Patient Register and the Civil Registration System. Using multivariable Cox proportional hazards models, we calculated hazard ratios (HR) for death during the first year following surgery among patients who at the time of surgery were active and previous smokers, respectively, compared with never-smokers. We used multiple imputation for missing information on smoking, DAS28 and HAQ-DI.

Results:

We identified 1,946 RA patients undergoing an elective THA/TKA with available smoking status for 1,092 patients: 255 (24 %) current, 417 (39 %) ex- and 420 (37 %) never smokers (Table). Compared with never smokers, current smokers were more likely to be males, treated with glucocorticoids, have COPD and ischemic heart disease. During the first year post-operatively, 24 patients died. Current smokers had increased HRs for death in uni- and multivariable analyses: adjusted HR 3.33 (95%CI 0.84-13.20) compared with never smokers. Similar results were observed in complete case and imputed analyses.

Conclusion:

We found a 3-fold borderline significant increased 1-year mortality risk among RA patients who were active tobacco smokers at the time of elective THA/TKA surgery. Considering the increased risk of death associated with RA by itself, these results emphasize the importance of smoking abstinence/cessation prior to major surgery in this vulnerable group of patients.