Title

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Preoperative Vitamin D Deficiency Is Associated With Higher Postoperative Complication Rates in Total Knee Arthroplasty

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Abstract

The purpose of this study was to determine the relative incidence of postoperative complications in 25-hydroxyvitamin D (25D)-deficient and -sufficient patients undergoing total knee arthroplasty (TKA). Patients who were either serum 25D deficient (25D <20 ng/mL) or 25D sufficient (25D ≥20 ng/mL) 90 days prior to primary TKA from 2007 to 2016 were identified using the Humana administrative claims registry. The incidence of postoperative medical and surgical complications was determined by querying for relevant International Classification of Diseases, Ninth Revision and Current Procedural Terminology codes. Risk-adjusted odds ratios (ORs) were calculated using multivariate logistic regression with age, sex, and Charlson Comorbidity Index as covariates. In total, 868 of 6593 patients who underwent TKA from 2007 to 2016 were 25D deficient, corresponding to a 13.2% prevalence rate. On adjustment for age, sex, and Charlson Comorbidity Index, 25D-deficient patients had a higher incidence of postoperative stiffness requiring manipulation under anesthesia (OR, 1.69; 95% confidence interval [CI], 1.39-2.04; P<.001), surgical site infection requiring irrigation and debridement (OR, 1.76; 95% CI, 1.25-2.48; P=.001), and prosthesis explantation (OR, 2.97; 95% CI, 2.04-4.31; P<.001) at 1 year. Patients who were 25D deficient also had higher rates of postoperative deep venous thrombosis (OR, 1.80; 95% CI, 1.36-2.38; P<.001), myocardial infarction (OR, 2.11; 95% CI, 1.41-3.15; P<.001), and cerebrovascular accident (OR, 1.73; 95% CI, 1.17-2.57; P=.006). Thus, serum 25D levels below 20 ng/mL are associated with a higher incidence of postoperative complications and may be a perioperative modifiable risk factor in TKA. [Orthopedics. 2018; 41(4):e489-e495.].