

Do Transfused Sickle Cell Patients Have Better Total Knee Arthroplasty Outcomes?

Introduction: Sickle cell anemia (SCA) is an inherited point mutation in the hemoglobin beta chain which leads to the deformation and potential lysis of red blood cells. Blood transfusions are an effective and proven treatment for patients experiencing complications of SCA. We aimed to identify incidence rates and postoperative outcomes between transfused and non-transfused SCA patients who underwent total knee arthroplasty (TKA).

Methods: The National Inpatient Sample was queried to identify patients who underwent TKA from the years 2005-2012. Transfused SCA patients were 1:1 propensity score-matched to non-transfused SCA patients controlling for age and sex. Univariate analysis was performed to compare differences in postoperative outcomes in the transfused SCA cohort. Multivariate logistic regression analysis controlling for age and sex was performed to determine blood transfusion status as an independent risk factor for postoperative complications between the two cohorts.

Results: 374 patients were identified (transfused SCA, n=187; non-transfused SCA, n=187). The average incidence rates of patients who were diagnosed with SCA and those transfused from 2005-2012 were 2.89 (95%CI: 2.46-3.32) and 0.74 (95%CI: 0.60-0.88) per 1,000,000 person years, respectively (Figure 1). Transfused SCA patients who underwent TKA had increased rates of overall surgical complications (p=0.037) and deep vein thrombosis (p=0.015) (Table 1). Moreover, transfused SCA patients were found to have an increased risk of surgical (OR=8.313, 95%CI=1.029-67.139, p=0.047) and medical (OR=2.133, 95%CI=1.003-4.536, p=0.049) complications (Table 2). However, postoperative mortality rates were comparable between the two cohorts (0.5% vs. 0.0%, p=1.000) (Table 1).

Conclusions: SCA patients who receive blood transfusions and undergo TKA have an increased risk of medical and surgical complications. These findings should be taken into consideration to optimize transfused SCA patients prior to TKA.