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Perioperative Blood Transfusions are Associated with Higher Healthcare Burden among Patients with Sickle Cell Disorder who undergo Total Knee Arthroplasty

Sickle cell disorders are common genetic abnormalities and present with numerous systemic complications. Sometimes, these patients require orthopedic procedures due to increased risk of avascular necrosis, osteoarthritis, or other bone pathologies. Additionally, some patients receive an intra- or postoperative transfusion to help mitigate the anemia associated with the syndrome. This study investigates the impact of these transfusions on surgical outcomes among patients with a sickle cell disorder undergoing a total knee arthroplasty. A retrospective cohort study was performed using the Nationwide Readmissions Database between 2009 and 2019. All patients with sickle cell disease and sickle cell trait receiving a total knee arthroplasty had been included in the sample. We assessed the effect of transfusions on hospital length of stay, medical complications, discharge status, total charges, and mortality. Multivariable analyses were also done to correct for demographic variation and other potential confounders. Patients with sickle cell disorders receiving blood transfusions had a longer hospital length of stay and significantly increased risk for institutional discharge. The multivariable analyses provided further clarity, showing a strong, independent relationship between transfusion history and length of stay (OR = 11.7, 95%CI(7.44, 18.6); $p < 0.001$), total hospital charges (OR = 1.23, 95%CI(1.15, 1.32); $p < 0.001$), as well as disposition to a healthcare facility (OR = 1.44, 95%CI(1.07, 1.94); $p = 0.015$). While intra and postoperative blood transfusions may mitigate acute complications of sickle cell disorders as well as treat surgery-associated blood loss anemia, they have been associated with a greater financial burden including longer hospital stays, higher charges, and institutional discharge. This research provides useful data that could lead to special considerations for patients with sickle cell disorder receiving a transfusion during a major orthopedic procedure.