

Sickle cell patients face higher risks in joint reconstruction surgeries, says study

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Credit: National Institutes of Health

Patients with sickle cell disease (SCD) who undergo total knee replacement are at higher risk for complications than non-SCD patients, according to a large-scale, retrospective study by researchers from UT Southwestern Medical Center and the University of Calgary. The study, published in *Archives of Orthopaedic and Trauma Surgery*, also found SCD patients tend to have extended hospital stays and face higher

associated health care costs.

"SCD [patients](#) undergoing [total knee replacement](#) need a multidisciplinary approach and may be better served in specialized centers capable of caring for these complex medical patients," said Senthil Sambandam, M.D., Assistant Professor of Orthopaedic Surgery at UT Southwestern and lead author of the paper. "These patients have a higher risk of postoperative complications requiring the involvement of various specialists including nephrologists, pulmonologists, and hematologists."

Dr. Sambandam added that the findings also highlight the importance of preventive strategies for SCD patients, including patient education and special joint health programs.

SCD is the most common congenital blood disorder in the U.S., affecting about 100,000 people. Diverse skeletal and arthritic issues are common among SCD patients, and many require joint reconstruction. As the life expectancy of SCD patients has increased over the years, so has the proportion of patients needing reconstruction. Yet, there is limited data on patients with SCD undergoing joint replacement.

To determine the risks associated with joint replacement in SCD patients, Dr. Sambandam and a group of researchers used the National Inpatient Sample database to identify patients who underwent total knee replacement, known as arthroplasty, between 2016 and 2019. Patients were divided into two groups: those with SCD and those without.

A total of 558,361 patients had total knee arthroplasty, of whom 493 (0.08%) were known to have SCD. A greater proportion of SCD patients were younger, male, and Black compared with non-SCD patients, which aligns with previous reports.

Results from the analysis of records found that SCD patients were at a significantly higher risk of developing [acute renal failure](#), needing a blood transfusion, and having deep vein thrombosis. Additionally, about 20% to 25% of SCD patients experienced acute chest syndrome, pain crisis, or splenic sequestration crisis around the time of surgery, which may have contributed to the longer hospital stays and greater [health care costs](#), the study found.

More information: Vibhu Krishnan Viswanathan et al, How does sickle cell disease affect the peri-operative outcome in patients undergoing total knee arthroplasty? A large-scale, National Inpatient Sample-based study, *Archives of Orthopaedic and Trauma Surgery* (2023). [DOI: 10.1007/s00402-022-04762-1](https://doi.org/10.1007/s00402-022-04762-1)

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