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Bruce Zhang   Advisor(s): Qais Naziri

Patients with Inter-Atrial Wall Abnormalities May Have Higher Risks of Adverse Postoperative Medical Outcomes During Admission for Total Knee Arthroplasty

Background: Total knee arthroplasty (TKA) is the most common joint arthroplasty procedure and is shown to be a reliable and efficacious way to improve a patient's quality of life. Individuals with Inter-atrial wall abnormalities (IAWAs) such as atrial septal defects (ASDs) and patent foramen ovales (PFOs) are at increased risk for stroke and overall lifetime morbidity. The purpose of our study was to elucidate the association between IAWAs and perioperative TKA outcomes.

Methods: We performed a retrospective cohort study utilizing the Healthcare Cost and Utilization Project (HCUP) National Inpatient Sample (NIS) database. Our study sample was identified using the ICD-9 and ICD-10 procedure codes for TKA between January 2010 to December 2019. Patients with ICD-9-CM diagnosis code 7455 or ICD-10-CM diagnosis code Q211 were assigned to the IAWA cohort, the primary exposure. Confounding variables included baseline demographics, health status, and surgical facility characteristics. The primary outcomes studied were medical complications, implant-related complications, and admission mortality. All outcomes were measured during admission for TKA. Univariate and adjusted multivariable regression analyses were used for identifying associations.

Results: Compared to patients in the non-IAWA cohort, those in the IAWA cohort had significant risks for medical complications (OR 5.77, 95% CI 4.59 to 7.15; p <0.001), implant-related complications (OR 1.55, 95% CI 1.09 to 2.12; p=0.009), stroke (OR 77.46, 95% CI 58.4 to 101.2; p <0.001), venous thromboembolism (VTE) (OR 3.78 95% CI 2.47 to 5.51; p <0.001), and mortality (OR 8.36 95% CI 3.54 to 16.52; p <0.001) during admission for TKA.

Conclusions: Compared to patients without IAWS, those with IAWAs may have higher risks for same-admission perioperative complications following TKA.