

## **Risk of Implant-Related Mechanical Complications Following Total Knee Arthroplasty Among Patients With Glaucoma, Cataract, or Diabetic Retinopathy**

Jackson W. Durbin, Eric Cui, Ruby E Rader, Ariel Kesick, Sabrina Gill, Bradley John Anderson, Rachel Ranson, Robert S Sterling, Jordan Villa

**INTRODUCTION:** Glaucoma, cataract, and diabetic retinopathy are leading causes of vision impairment and are associated with increased risks of falls and fractures. No studies have examined the impact of these conditions on outcomes following total knee arthroplasty (TKA). The purpose of this study was to observe the association between history of glaucoma, cataracts, and diabetic retinopathy and 2-year implant-related mechanical outcomes following TKA.

**METHODS:** This was a retrospective study utilizing the PearlDiver database. Patients who underwent TKA were identified and stratified into cohorts of glaucoma, cataract, and diabetic retinopathy. These groups were compared to a control group, which consisted of patients without any diagnosed visual impairments. In order to control for comorbidities, multivariate logistic regression was conducted for each 2-year implant-related outcome (all-cause revision, periprosthetic fractures [PPF], and mechanical loosening) with all findings reported as odds ratios (ORs) and confidence intervals (CI).

**RESULTS:** Patients who have glaucoma experienced increased risks of PPF (OR: 1.8; CI: 1.6-2.0) and mechanical loosening (OR: 1.7; CI: 1.5-1.9). Similarly, patients who have cataracts had higher odds of PPF (OR:1.7; CI: 1.6-1.8) and mechanical loosening (OR: 1.6; CI: 1.4-1.7). Interestingly, cataracts were associated with a decreased risk of revision (OR: 0.9; CI: 0.8-0.9). Finally, patients who have diabetic retinopathy had higher 2-year risks for revision (OR: 1.2; CI: 1.1-1.2), PPF (OR: 3.2; CI: 2.8-3.5), and mechanical loosening (OR: 2.1; CI: 1.8-2.4).

**DISCUSSION AND CONCLUSION:** These results suggest a correlation between visual disorders and mechanical outcomes following TKA. In patients who have diabetic retinopathy, there was an over three times higher risk of 2-year PPF. This suggests that careful counseling and optimizations, such as fall prevention and screenings, may be warranted to reduce risk profiles and improve outcomes.