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Risk of Glaucoma Surgery after Corneal Transplant Surgery in Medicare Patients

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**ABSTRACT**

**PURPOSE:** Glaucoma is a well-documented complication of corneal transplants, contributing significantly to ultimate visual loss. Reported incidence of glaucoma following corneal transplants is highly variable, and definitions of post-transplant glaucoma are inconsistent. Here we use glaucoma surgery as a more rigid and specific endpoint to compare rates following different corneal transplant surgeries.

**DESIGN:** Retrospective cohort study

**METHODS:** A 5% random sample of Medicare beneficiaries from 2010-2013 was obtained and patients were identified with Current Procedural Terminology (CPT) codes for penetrating keratoplasty (PK), endothelial keratoplasty (EK), anterior lamellar keratoplasty (ALK), and keratoprosthesis (KPro). Rates of glaucoma surgery within the same year following the abovementioned corneal transplants were analyzed. Subgroup analyses included patients who carried preexisting glaucoma diagnoses prior to corneal transplant surgery.

**RESULTS:** There were 3,098 patients who underwent corneal transplants during the study period, including 1,919 EK, 1,012 PK, 46 ALK, 32 KPro, and 89 both PK and EK. Rates of glaucoma surgery ranged from 6.1% to 9.4% in the corneal transplant groups, without statistically significant differences among groups. However, 10.0% of patients with preexisting glaucoma required glaucoma surgery following any transplant surgery, compared with 5.3% of patients without preexisting glaucoma. This included 12.4% of PK patients with preexisting glaucoma compared with 2.8% of PK patients without preexisting glaucoma ( $p < 0.01$ ).

**CONCLUSIONS:** Despite literature suggesting that more angle-altering cornea surgeries confer higher risk, we found no statistically significant differences among various transplant groups. Patients with preexisting glaucoma, however, had higher risk of glaucoma surgery within the same year following corneal transplant surgery, which was especially pronounced in the PK group. These patients require special care when considering long-term effects of corneal transplants.

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