ETIOLOGY OF KERATOPROSTHESIS LOSS: RESULTS FROM THE BOSTON KERATOPROSTHESIS MULTICENTER STUDY

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INTRODUCTION

Over the last 200 years, several groups have worked to develop a keratoprosthesis (Kpro) to treat patients with corneal blindness and a poor prognosis for penetrating keratoplasty (PK). These include patients with repeated graft failures, chemical injury, and autoimmune diseases. There are several K-pro designs that have been developed throughout the world. The most commonly used design in the United States is the Boston (Type 1) K-Pro. In 1974, Claes Dohlman first reported results from the implantation of a polymethyl methacrylate (PMMA) collar-button K-pro in 36 patients. In 1993, the Boston Type 1 K-Pro was approved by the FDA for marketing in the United States. The Boston Keratoprosthesis is typically used after multiple failed cornea transplants. The Boston K-Pro has also offered hope to patients with severe ocular surface disease resulting from chemical injuries and cicatricial autoimmune diseases.

RESULTS

21 of 252 implanted keratoprostheses were not retained during the study period. Overall the retention rate was 91.6% (average follow-up of 13 months, range 1 – 53 months). Figures 1 and 2 demonstrate repeat corneal transplant survival and that of the Boston KPro survival. 25.6% (11/43) of patients with autoimmune disease failed to retain the KPro. 9 of the autoimmune KPro’s lost developed a cornea melt around the implant requiring its replacement. 10.7% (3/28) KPro’s in the chemical injury group required replacement. 2 due to thinning of the peripheral donor cornea at the donor-host interface.

CONCLUSION

Patients with autoimmune disease have the poorest KPro retention mostly due to cornea melting around the implant. Patients with chemical injuries also have a guarded prognosis and appear to be at a higher risk of thinning of the peripheral donor cornea. Patients lacking chemical injury or autoimmune disease have an excellent retention rate (96%).

REFERENCES


The authors have no financial interest in the study material.