

OUTCOMES OF PENETRATING KERATOPLASTY IN PATIENTS WITH PSEUDOPHAKIC BULLOUS KERATOPATHY

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Background: Pseudophakic Bullous Keratopathy is one of the main indications for corneal grafting in the UK. However graft survival is poorer for Pseudophakic patients, compared with the other main indications for corneal grafting. It is hypothesised that one of the reasons for poor graft survival may be that previous intraocular inflammation has resulted in these eyes being 'immunologically primed' and thus require long-term topical steroids post-operatively.

Methods: This study considers Pseudophakic patients receiving a first Penetrating Keratoplasty (PKP) in the UK between April 1999 and March 2004. There were 1274 first PKP grafts for Pseudophakic Bullous Keratoplasty reported to UK Transplant in this time period, of which 1184 (91%) were grafted for visual reasons. Of these 1184 grafts, follow-up has been reported in 1033 instances (87%). Kaplan-Meier survival curves were used to illustrate differences in three-year transplant outcome between the main indications. A Cox regression model was fitted, to investigate the effect that pre-operative factors and post-operative medications have on graft survival.

Results: Three-year graft survival for Pseudophakic patients was 65% (95% CI: 59-70), whereas the graft survival rates for Keratoconus and Fuchs' patients were much higher at 96% and 92% respectively. Steroids were still being used 18 months post-operatively in 378 of the 1033 (36%) corneal grafts included in this study. Patients receiving steroids for longer than 18 months were half as likely to fail, and this was highly significant in the final model ($p=0.0002$, 95% CI 0.3-0.7).

Of the pre-operative factors considered, donor age ($p=0.01$), HLA matching ($p=0.008$), trephine size ($p=0.02$), recipient age ($p=0.03$), corneal vascularisation ($p=0.02$) and surgeon activity levels ($p=0.01$) were all found to affect graft survival. There were also statistically significant associations between graft survival and the post-operative use of glaucoma medication ($p=0.001$) and other immunosuppressants ($p=0.03$).

Conclusions: The use of long-term postoperative steroids improved graft survival, even when taking account of other factors that may affect graft survival. Thus the use of long-term steroids should be considered post-operatively following penetrating keratoplasty for Pseudophakic Bullous Keratopathy.