Survey of Topical Steroid Usage Patterns After Descemet Membrane Endothelial Keratoplasty (DMEK)

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Purpose

Descemet's Membrane Endothelial Keratoplasty (DMEK) has become the mainstay of surgical management for corneal endothelial dysfunction such as Fuchs' endothelial corneal dystrophy (FECD) and pseudophakic bullous keratopathy (PBK). Topical steroids are utilised postoperatively to reduce the risk of allograft rejection. However, their long-term use can result in adverse effects, and contributes to medication burden and waste. In addition, there is no nationally or internationally agreed consensus on the duration of post-operative topical steroid use for endothelial keratoplasties. This cross-sectional study aimed to investigate the current global practice amongst corneal surgeons with regards to topical steroid treatment regimens after DMEK surgery.

Methods

A nine-item electronic survey with free text responses was sent to ophthalmologist members of the Cornea Society in March, 2024. The questionnaire explored surgeons' preferred postoperative steroid regimens in three scenarios: 1) post-DMEK for FECD, 2) post-DMEK for PBK, and 3) post-repeat DMEK after previous graft failure. All responses to the survey were anonymous. Incomplete survey responses were excluded prior to analysis.

Results

78 ophthalmologists from 15 countries completed the online questionnaire. Respondents performed a median of 37.5 grafts per year (mean 45.8; SD 46.7; range 2-300). Prednisolone 1% was the preferred topical steroid during the 12 months post-DMEK for FECD, in the 24 months post-DMEK for PBK, and after 24 months post-repeat grafts. Almost half (44%; n = 34) of surgeons discontinued topical steroids at 24 months post-DMEK for FECD. Of the remaining 44 surgeons, 53% (n=24) continued topical steroids indefinitely. Similarly, 36% of surgeons stopped topical steroids at 24 months post-DMEK for PBK, while 54% continued indefinitely. For cases of repeat DMEKs following previous graft failure, 63% of surgeons continued topical steroids indefinitely. Long-term follow-up regimens were also variable, with 45% of surgeons discharging their patients between 1 and 5 years post-operatively. The remaining respondents (55%) continued to follow up their patients indefinitely.

Conclusions

This international survey highlights significant variability in the duration of post-operative topical steroid use following DMEK for FECD, PBK and graft failure. Given this heterogeneity, further studies are needed to look at graft rejection and failure rates with different postoperative topical steroid regimens. An international consensus would aid in standardising post-operative care for routine cases, may reduce unnecessary waste, and lower CO2 footprints.

Figures: *Distribution of surveyed corneal surgeons' (n = 78) (A) preferred topical steroid and (B) drop administration frequency (B) for postoperative management after a routine DMEK or triple DMEK for FECD / a routine DMEK for PBK/ a DMEK following previous failed DMEK (repeated graft).*











