RISK FACTORS FOR GRAFT FAILURE FOLLOWING DESCEMET'S STRIPPING AUTOMATED ENDOTHELIAL KERATOPLASTY

T. Lin MD, M. A. Pace MSc and A. C. Tokarewicz MD

Western

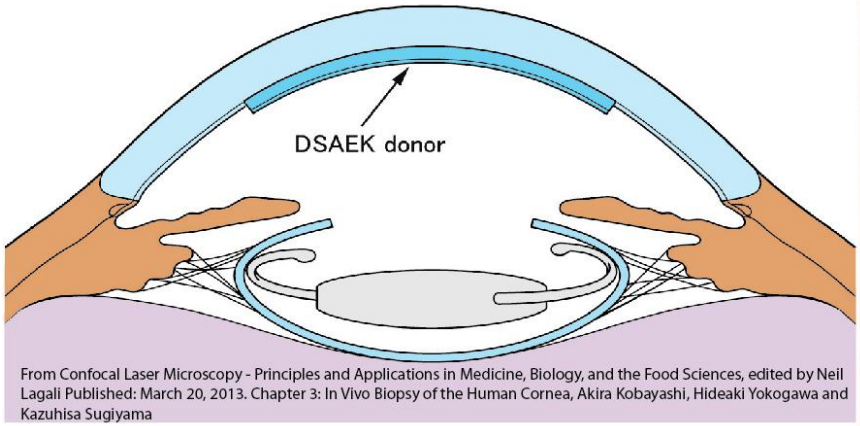
St Joseph's Health Care London

The authors have no financial interests to disclose.

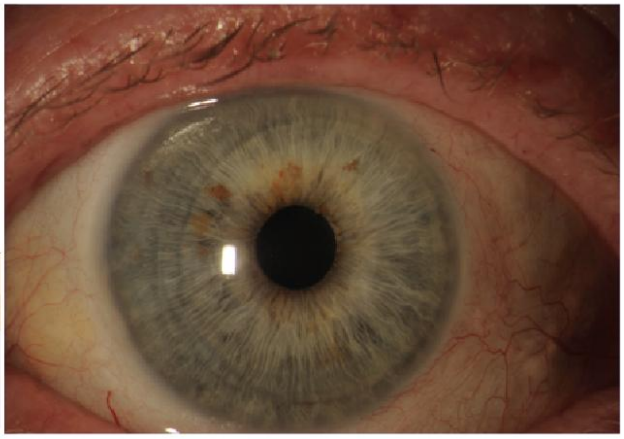
Corneal Transplant

- Descemet stripping automated endothelial keratoplasty (DSAEK) is quickly emerging as the treatment of choice for corneal endothelial dysfunction. However, few studies have examined risk factors associated with graft failure.

- As we have observed several patients with post operative IOP rise, the purpose of this study was to determine if a rise in IOP was associated with an increased risk for graft failure.



From Confocal Laser Microscopy - Principles and Applications in Medicine, Biology, and the Food Sciences, edited by Neil Lagali Published: March 20, 2013. Chapter 3: In Vivo Biopsy of the Human Cornea, Akira Kobayashi, Hideaki Yokogawa and Kazuhisa Sugiyama



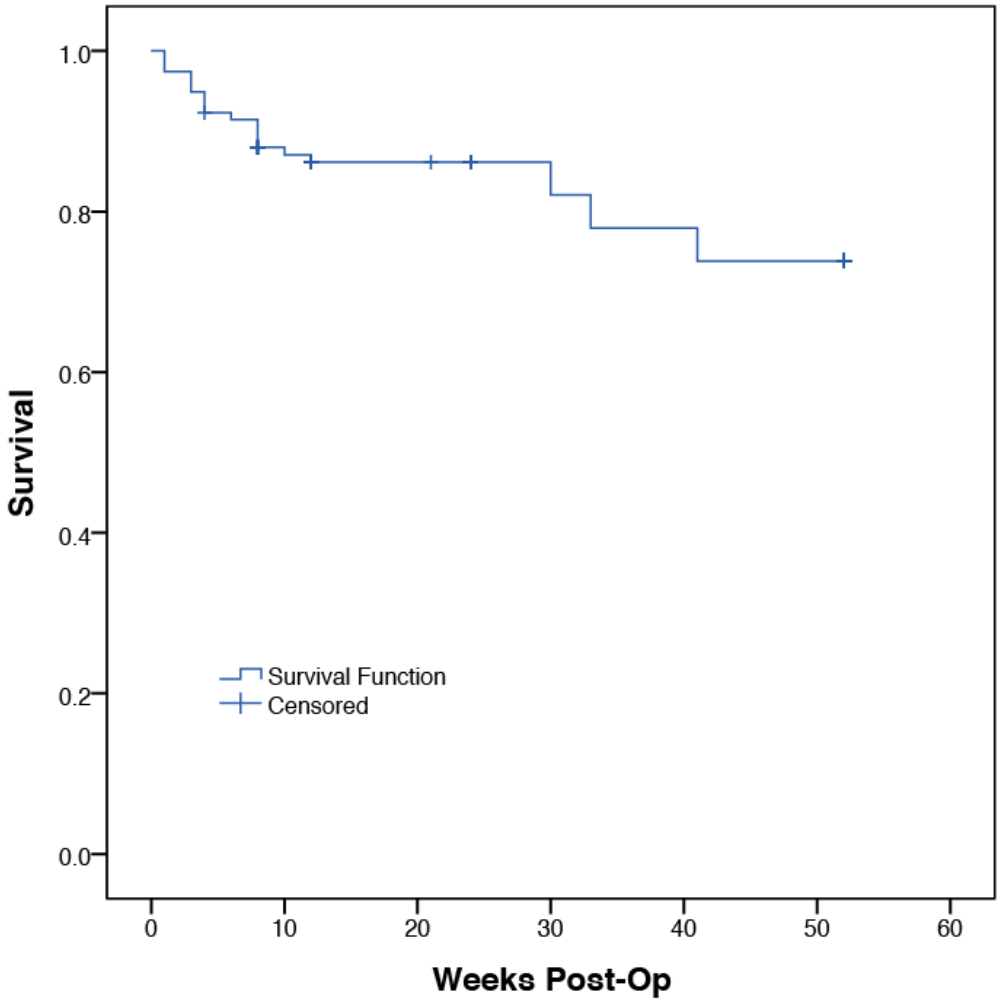
Methods

- A retrospective chart review was done on 117 DSAEK cases performed at the Ivey Eye Institute.

- Only the first graft received by each patient was analyzed. Corneal graft failure was defined as an irreversible loss of optical clarity.

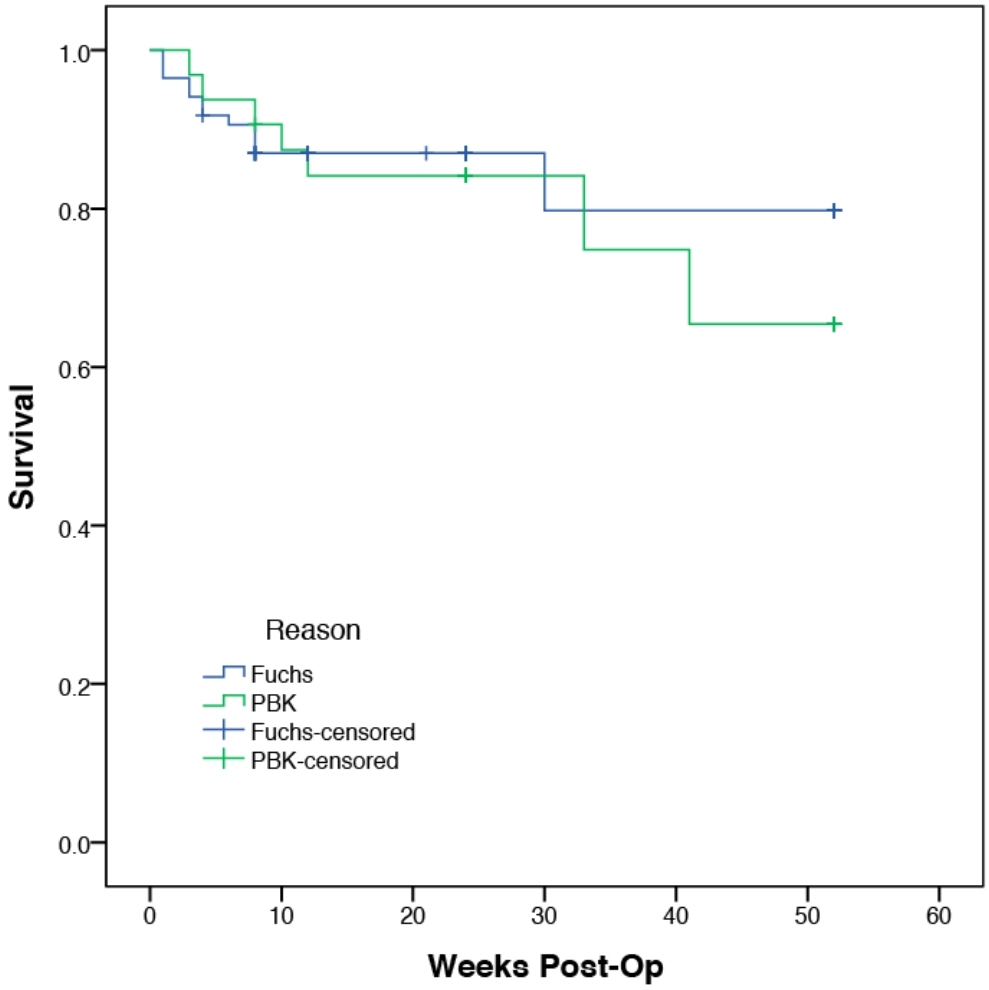
- Graft survival was calculated using Kaplan–Meier survival analysis. Post operative rise in IOP (>21mmHg) and the indication for DSAEK were analyzed as potential risk factors for graft failure by Cox proportional hazards analysis.

Results



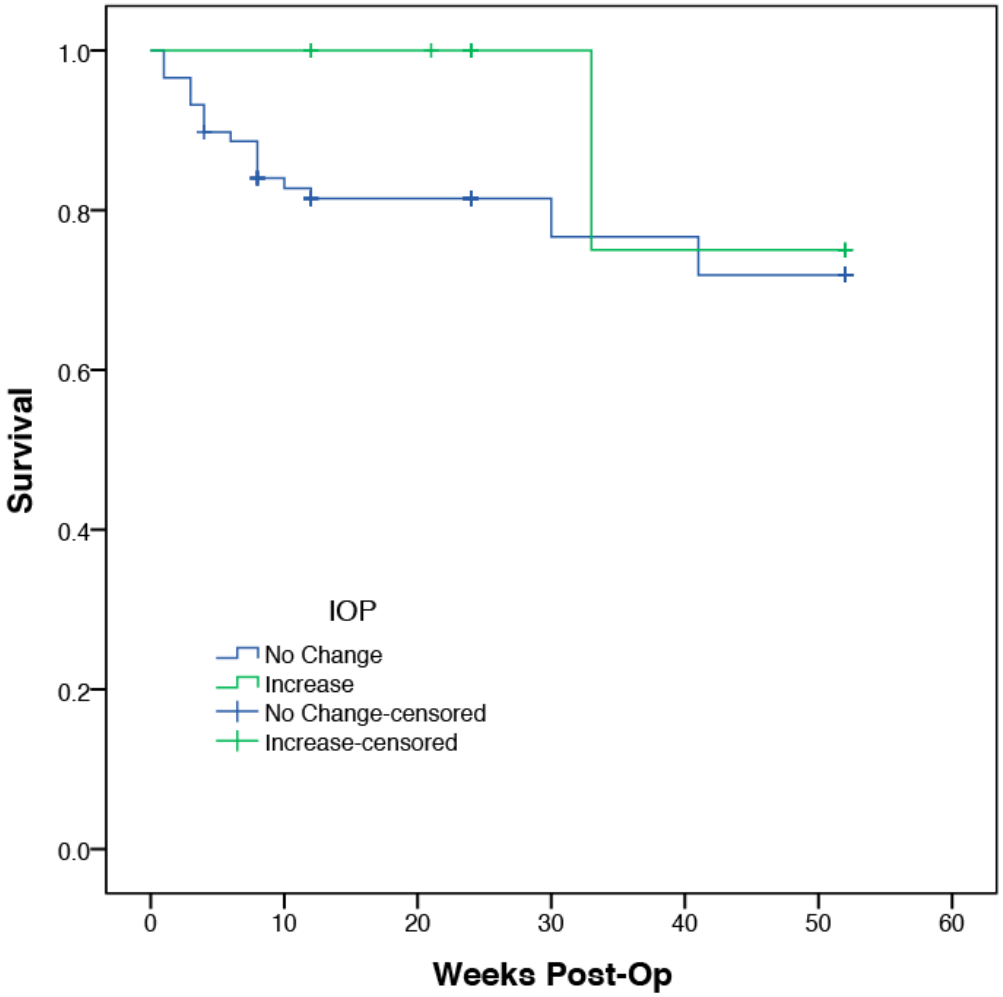
Overall graft survival was 84% with all graft failures occurring within the first year.

Results



No significant difference was seen in failure rates between grafts for Fuchs' endothelial dystrophy and pseudophakic bullous keratopathy (P>0.05).

Results



No significant difference in graft failure rates for eyes with post operative rise in IOP (P>0.05).

Results

	No. Failed/No. Grafts	Failure(%)	Hazard Ratio	95% Confidence Interval	P Value
Postoperative pressure spike					
No	18/88	20.4	Reference		
Yes	1/29	3.4	0.166	.022 - 1.244	0.081
Indication for graft					
Fuchs	12/85	14.1	Reference		
PBK	7/32	21.9	1.229	.481 - 3.139	0.667

PBK = pseudophakic bullous keratopathy

Conclusions

- In this study, IOP rise following DSAEK surgery that were managed medically were not at significantly higher risk for graft failure.

- Although this research did not show a significant difference in graft failure rates, prior research has indicated an increase in graft failure associated with PBK.

- At present there is a paucity of data on long term graft survival for DSAEK owing to DSAEKs relatively recent adoption. Further investigation in needed to identify risk factors associated with graft failure.

References

- Allen MB, Lieu P, Mootha VV, Bowman RW, Petroll WM, Tong L, Kooner KS, Cavanagh HD, Whitson JT, Aggarwal NK. (2010) Risk factors for intraocular pressure elevation after descemet stripping automated endothelial keratoplasty. Eye Contact Lens. 36(4):223-7

- Anshu A, Lim LS, Htoon HM, Tan DT. (2011) Postoperative risk factors influencing corneal graft survival in the Singapore Corneal Transplant Study. Am J Ophthalmol. 151(3):442-8.e1.

- Anshu A, Price MO, Price FW. (2012) Descemet's Stripping Endothelial Keratoplasty: Long-term Graft Survival and Risk Factors for Failure in Eyes with Preexisting Glaucoma. Ophthalmology. 119(10):1982-7

- Price MO, Jordan CS, Moore G, Price FW Jr. (2009) Graft rejection episodes after Descemet stripping with endothelial keratoplasty: part two: the statistical analysis of probability and risk factors. Br J Ophthalmol. 93(3):391-5

- Quek DT, Wong T, Tan D, Mehta JS. (2011) Corneal graft survival and intraocular pressure control after descemet stripping automated endothelial keratoplasty in eyes with pre-existing glaucoma. Am J Ophthalmol. 152(1):48-54.e2.

- Williams KA, Esterman AJ, Bartlett C, Holland H, Hornsby NB, Coster DJ. (2006) How effective is penetrating corneal transplantation? Factors influencing long-term outcome in multivariate analysis. Transplantation. 81(6):896-901