Learning Curve for Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK)

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Introduction: Corneal surgeons have made the transition from penetrating keratoplasty to DSAEK. [1] In the United states Endothelial Keratoplasty constitutes 32% of all corneal translpants.[2] However like all surgical proceedures there is a learning curve with associated complications.[2,3,4]

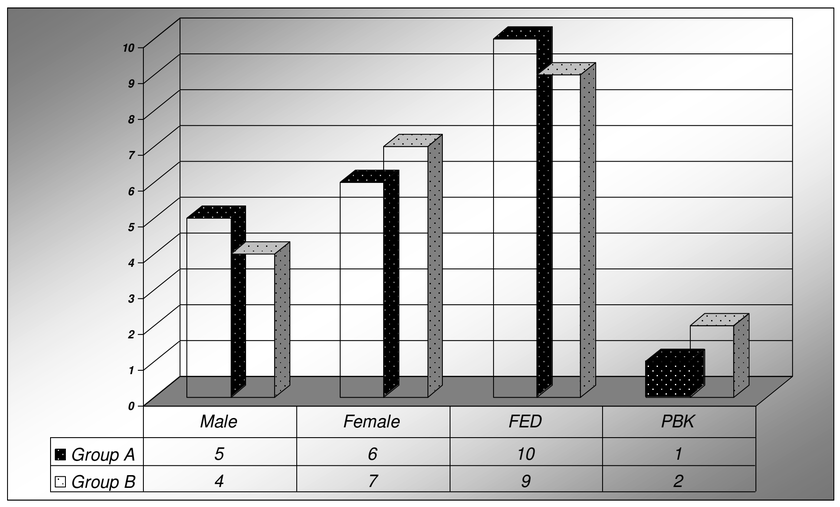
Purpose: To report on the learning curve for Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK).

Method: A retrospective analysis of the first 22 cases of DSAEK performed under the care of single surgeon (VK). Donor tissue was prepared using the Gebauer SL Microkeratome System for DSAEK (Gebauer Medizintechnik GmbH, Neuhausen, Germany). A detailed analysis of complications, secondary interventions and outcomes comparing the first 11 cases (Group A) with the last 11 cases (Group B) was carried out.

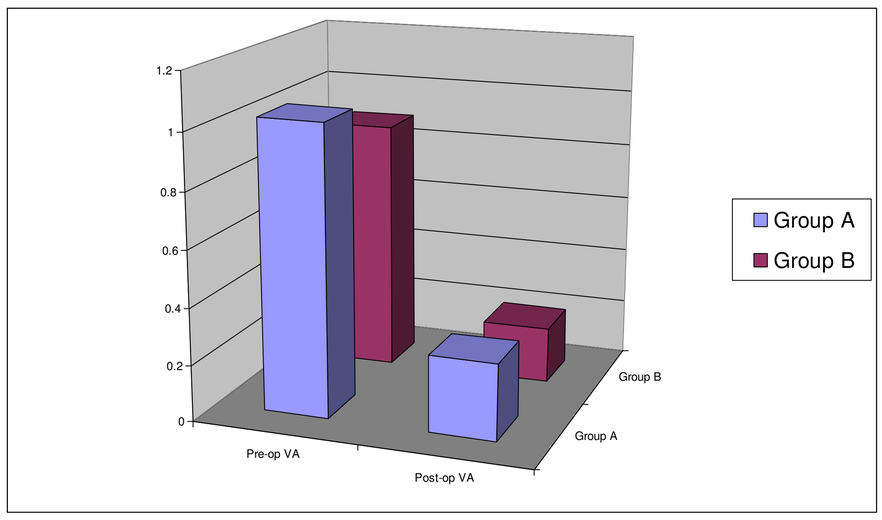
Results: Group A; 5 males and 6 females with mean age of 71.1 years (range 52-84 years). Group B; 4 males and 7 females with mean age of 76.1 years (range 67-90 years). Fuchs' Endothelial Dystrophy (FED) was the primary cause of corneal decompensation in 10/11 patients in group A compared to 9/11 in group B. Mean Log MAR visual acuity (VA) pre-operatively was 1.02 in group A and 0.90 in group B. Duration of follow up was longer in group A (mean: 13.3 months) compared to group B (7.8 months). At 6 months; mean post operative VA was 0.27+/- 0.18 log MAR in group A and 0.20 +/- 0.19 log MAR in group B. 73% of patients had improvement in their VA in group A compared to 100% in group B. Post operative corneal astigmatism was ≤ 2.00D in 67% of patients in group A and 90% of patients in group B. Excluding co-pathologies, 87% of eyes in group A achieved VA of 6/12 or better post operatively compared to 90% in group B. 63% achieved 6/9 or better in group A as compared to 81% in Group B. Re-bubble rate was 27% in group A and 9% in group B. No surgical complications were noted in either group.

Conclusion: Learning curve for DSAEK is most notable for successful graft attachment as indicated by re-bubble rates. This may be a factor in final visual outcome, which was more favourable in group B.

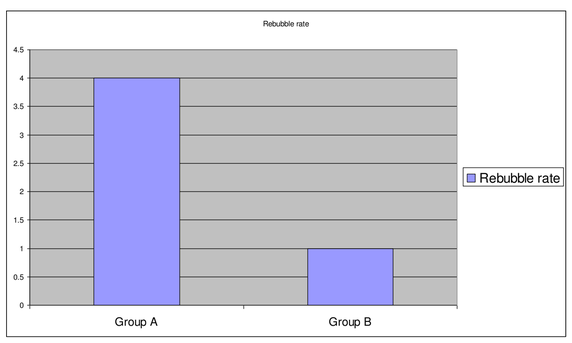
Demographics & Diagnosis

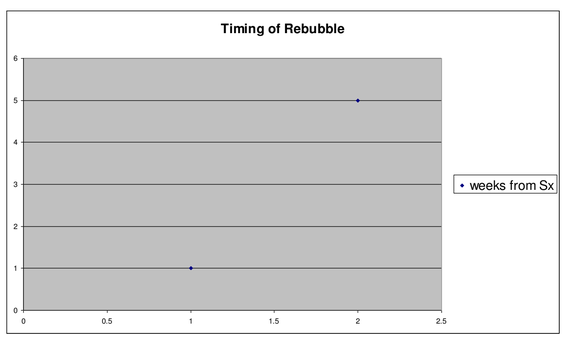


LogMar Visual Acuity



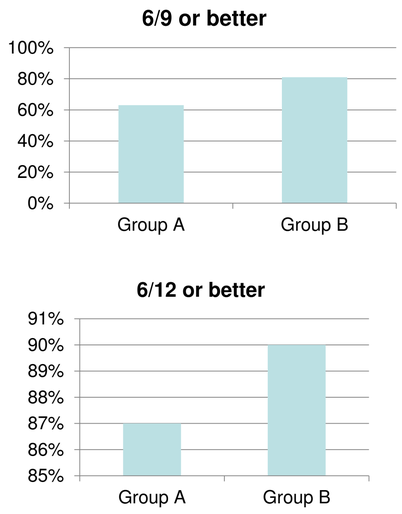
Rebubble Rate & Time **since** surgery

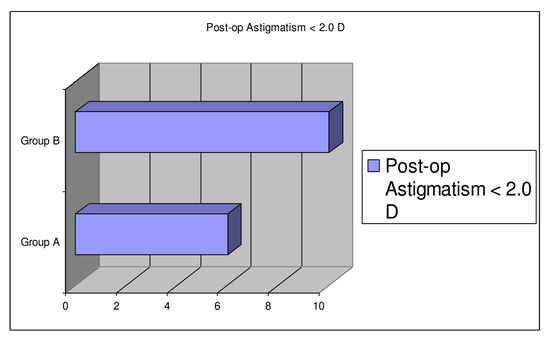


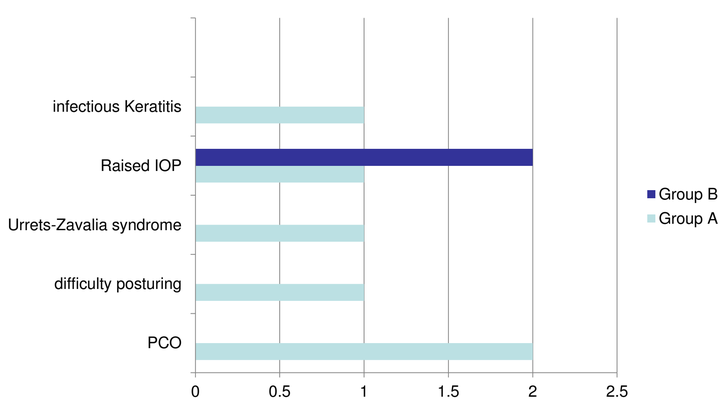


1 patient in Group A had to be rebubble twice due to positioning problems. This was done with in the 1st 2 weeks of Surgery.

Refractive outcomes







Complications

References

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3. Terry MA, Shamie N, Chen ES, et al. Endothelial keratoplasty for Fuchs' dystrophy with cataract: complications and clinical results with the new Triple Procedure. Ophthalmology. 2009;116:631–639.

4. Terry MA, Shamie N, Chen ES, et al. Endothelial keratoplasty: a simplified technique to minimize graft dislocation, iatrogenic graft failure and pupillary block. Ophthalmology.2008;115:1179–1186.