REFRACTIVE SHIFT IN ENDOTHELIAL KERATOPLASTY

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Background

- DSAEK; Desemet Stripping Automated Endothelial Keratoplasty

  - is the gold standard and the treatment of choice over PK in the surgical management of corneal endothelial diseases such as
    - Fuchs Endothelial Dystrophy, FED
    - Pseudophakic Bullous Keratopathy, PBK
    - Endothelial failure after PK
    - IridoCorneal Endothelial syndrome
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<th>DSAEK</th>
<th>PK</th>
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<td>- rapid visual recovery</td>
<td>- corneal denervation causes a neurotrophic status leading to</td>
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<td>- less surgically induced astigmatism and ametropia</td>
<td>epithelial complications</td>
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<td>- less long-term risk of wound dehiscence</td>
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<td>- reduced risk of intraoperative expulsive hemorrhage</td>
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<td>- reduced incidence of graft rejection</td>
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Disadvantages

- **DSAEK:**
  - The greatest endothelial cell loss seems to occur during donor insertion.
  - Main concern surrounding DSAEK remains the rate of postoperative endothelial cell loss.

- **PK:**
  - Suture-related complications.
  - Anisometropia.
  - Long duration of visual rehabilitation.
  - Risk of intraoperative expulsive haemorrhage.
  - Long-term risk of corneal allograft rejection.
  - Wound rupture with minor trauma.
Purpose

- To evaluate the refractive shift following Descemet’s Stripping Automated Endothelial Keratoplasty (DSAEK) in pseudophakic patients

- To report on the visual outcome
Methods

- Retrospective case series analysis of the visual outcome and refractive shifts after DSAEK

- Data including predicted refraction after phacoemulsification was collected, analysed and compared to the refractive outcome after DSAEK
Results

- Twenty three cases of DSAEK were included

- Consecutive cases performed under the care of a single surgeon (VK) between June 2009 & April 2011 in two sites in South Wales; UHW & POWH
Demographic Data

- **Gender:**
  - 10 Male.
  - 13 Female.

- **Age:**
  - Range: 52-90 years.
  - Mean: 73 years.
Diagnosis

- **FED;**
  - 18 EYES
  - 78%

- **PBK;**
  - 5 EYES
  - 22%
Lens Status at Time of Surgery.

- 22 Pseudophakic Eyes;
  - 21 Phacoemulsification
  - 1 ECCE
- 1 patient had combined Phaco & DSAEK

- Mean targeted spherical error was -0.6 D.
- Ranges from 0.0 D to -1.14 D
Duration of Follow up.

- Ranges from 2 – 21 months.
- Mean follow up: 9.8 months.
Pre Op. VA LogMAR

Range from: 0.50 – 2
Mean; 0.95
INTRA OPERATIVE COMPLICATIONS

- No intra-operative complications were recorded
Further Surgical Procedures

- Rebubble Rate

- Selective Removal of Sutures
  - Range: 2-8 months
  - Mean: 4 months
Post op. VA

Change in VA

Range: 0.60 – 0.0
Mean; 0.22
Post Operative VA

- 6/6 or Better: 30%
- 6/9 or Better: 70%
- 6/12 Or Better: 90%
Post Op. Astigmatism

- <1 D: 37%
- <2 D: 79%
- <3 D: 95%
Post Operative Spherical Equivalent of 0.50 D Or Less

53%  47%

N  Y
Targeted Vs Final Spherical Error

Refractive error in D

FINAL SPHERICAL ERROR
PREDICTED REFRACTION
Targeted Vs Final Spherical Error

**Targeted** (1)

- Mean Targeted spherical error was -0.6 D.
- Ranges from: 0.0D to -1.14D;

(1): SRK/T, Adjusted for A Cons of IOL

**Final**

- Mean; + 0.28 D
- Ranges between (-1.0 to +1.0 D)
Mean refractive shift was +0.88 D
Range: -0.40D to +1.75D
POST OP COMPLICATIONS

- Infective Keratitis recorded in one patient post op. resulted in central corneal scarring with reduced VA
- Difficulty in posturing in one patient resulted in re-bubbling twice
- Graft displacement where no action needed so far, noticed in two patients
- Two patients developed Raised IOP, medically controlled
GRAFT REJECTION

- No episode of Graft rejection recorded
Conclusion

- DSAEK procedure resulted in a small hyperopic shift
- It should be factored in the target refraction at the time of phacoemulsification in patients at risk of corneal decompensation
THANK YOU