

Title Descemet Stripping Automated Endothelial Keratoplasty (DSAEK) for corneal endothelial dysfunction

Agency Avalia-t. Axencia de Avaliación de Tecnoloxías Sanitarias de Galicia
Edificio Administrativo San Lázaro 15781 Santiago de Compostela
Telf.: 881 541 831 Fax: 881 542 854 e-mail: avalia-t@sergas.es ·
<http://avalia-t.sergas.es>

Reference D.L.: C 841-2013
<http://www.sergas.es/Docs/Avalia-t/avalia-t201209Queratoplastia.pdf>

Aim

To assess the efficacy/effectiveness, safety and cost of the DSAEK technique per se or in comparison to penetrating keratoplasty (PK), in patients with corneal endothelial failure.

Conclusions and results

Of a total of 583 papers retrieved, 20 case series and 2 economic evaluation studies fulfilled the inclusion criteria. Best-corrected visual acuity (BCVA) improved after treatment with DSAEK, with statistically significant results vis-à-vis pre-intervention figures, attaining values of 0.6 to 0.8. Studies which compared DSAEK to PK reported values of 0.45-0.56 and 0.125-0.38 respectively, with differences that were not always significant. The degree of post-DSAEK astigmatism was not significant and appeared to be better than that achieved with PK. The main complications were primary failure (0%-12%), endothelial rejection (0.8%-8.5%) and graft dislocation-detachment (1.5%-23%). Nevertheless, success (defined as a clear corneal graft) was 80.4% at five years. In PK, endothelial rejection was the most frequent complication, with rates of 16%.

- In Fuchs' dystrophy and bullous keratopathy, data on the effectiveness of DSAEK indicate post-intervention improvement in uncorrected and best-corrected visual acuity in relation to baseline values registered prior to the procedure. According to the studies identified, post-DSAEK outcomes for BCVA and degree of astigmatism are similar to or even better than those achieved with PK.
- The most important post-DSAEK complications are linked to the viability of the graft, with the most frequent of these being dislocation-detachment and, to a lesser extent, endothelial rejection.
- In PK, rejection is the most frequent complication.
- In DSAEK, the learning curve is a key factor and is directly linked to the success of the graft transplantation.
- The long-term graft survival rate is similar with both techniques.
- Economic evaluation data show that as compared to PK, DSAEK is a cost-effective technique.

- The studies that assess DSAEK are case series, for the most part retrospective. The methodological quality of such studies tends to be low and limited, and so when it comes to recommending or discouraging the adoption of this technique, their results should be approached with caution.

Recommendations

- In the event of DSAEK being indicated, candidates likely to have better outcomes would be those presenting with no severe ocular co-morbidities. Individualised assessment would be necessary in the case of patients who, due to previous surgery (PK, glaucoma), performance of simultaneous intraoperative interventions and/or severe ocular co-morbidities, displayed a worse prognosis in terms of effectiveness and safety.
- The intervention would have to be performed at centres that were authorised/accredited to perform transplants, and by experienced surgeons because the success rate depends to a great extent on the learning curve.
- To reduce the cost of DSAEK, one alternative could be for pre-cut corneas to be supplied by a reference eye-bank to the various centres that performed the technique.

Methods

A bibliographic search stipulating no time limit was made in October 2012 and updated in January 2013, of papers published in the principal biomedical databases specialising in systematic reviews (Health Technology Assessment, Centre for Reviews and Dissemination, Database of Abstracts of Reviews of Effects, National Health Service Economic Evaluation Database, Cochrane Library Plus) and in general databases such as Medline and Embase.

Written by

Lucinda Paz Valiñas and Ramón De La Fuente Cid.