Abstracts

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Descemet's Membrane Endothelial Keratoplasty: Clinical Results of Single Versus Triple Procedures (Combined With Cataract Surgery)

Chaurasia S, Price FW, Gunderson l, Price MO. Ophthalmology 2014; 121: 454-8.

In this retrospective, comparative, interventional case series the outcomes of triple Descemet's membrane endothelial keratoplasty (DMEK) versus DMEK alone in pseudophakic eyes were compared. Patients with Fuchs' endothelial dystrophy, secondary corneal edema, and prior failed endothelial keratoplasty with or without prior cataract extraction were included. Outcomes of 492 DMEK procedures performed between April 2010 and August 2012 were reviewed; 292 pseudophakic eyes underwent DMEK (group 1) and 200 eyes had concurrent cataract surgery with DMEK (group 2). Corrected distance visual acuity, endothelial cell loss, immediate and early postoperative complications were taken as main outcome measures. The mean age at the time of surgery was 70 years (range, 47 – 94 years) in group 1 and 64 years (range, 46 – 90 years) in group 2 ($P < 0.0001$). At 6 months, the median corrected distance visual acuity was 20/25 (range, 20/16 – 20/80; n = 164) in group 1 and 20/20 (range, 20/16 – 20/100; n = 121) in group 2 ($P < 0.0001$), excluding 21 eyes with retinal or optic nerve problems. The DMEK graft failed to clear in 9 eyes (3.1%) in group 1 and 7 eyes (3.5%) in group 2 ($P = 0.34$); all were re-grafted successfully with DMEK. No further graft failures occurred during the follow-up period. The air reinjection rate was 30% in group 1 and 29% in group 2 ($P = 0.69$). The air reinjection rate dropped significantly in both groups, from 45% to 16%, after use of viscoelastic was eliminated during the tissue insertion step. The median endothelial cell loss at 3 to 6 months did not differ significantly between groups (26% in both). The authors concluded that Triple DMEK was not associated with any higher risk of complications than DMEK alone. Compared with sequential management of patients with concomitant cataract and endothelial dysfunction, triple DMEK is an effective strategy in rapid visual rehabilitation and offers the advantage of a 1-stage procedure, with reduced risks and costs.

Management and Outcome of Retinoblastoma with Vitreous Seeds

Manjandavida FP, Honavar SG, Reddy VAP, Khanna R. Ophthalmology 2014; 121, 517-24.

Fairooz et al reported the treatment response of retinoblastoma with vitreous seeds to high – dose chemotherapy coupled with periocular carboplatin in this retrospective, interventional case series. Consecutive patients with retinoblastoma with vitreous seeds managed over 10 years at a comprehensive ocular oncology center and followed up for at least 12 months after the completion of treatment were included in this study. Institutional review board approval was obtained and high-dose chemotherapy with a combination of vincristine, etoposide, and carboplatin in patients with focal vitreous seeds and additional concurrent periocular carboplatin in patients with diffuse vitreous seeds was given. Main outcome measures noted were Tumor regression, vitreous seed regression, and eye salvage. After excluding the better eye of bilateral cases, 101 eyes of 101 patients were part of the final analysis. All the patients belonged to Reese-Ellsworth group VB, but on the International Classification of Retinoblastoma (ICRB), 21 were group C, 40 were group D, and 40 were group E. The mean basal diameter of the largest tumor was 11.8±4.7 mm. Mean tumor thickness was 7.5 ± 4.0 mm. Vitreous seeds were focal in 21 eyes and diffuse in 80 eyes. Chemotherapy cycles ranged from 6 to 12 (median, 6). Seventy-three eyes with diffuse vitreous seeds received a 15 mg posterior sub-Tenon carboplatin injection (range, 1 – 13 mg; median, 6 mg). Follow-up duration ranged from 13.4 to 129.2 months (median, 48 months). External beam radiotherapy (EBRT) was necessary in 33 eyes with residual tumor, vitreous seeds, or both. In all, 20 eyes (95%) with ICRB group C retinoblastoma, 34 eyes (85%) with group D retinoblastoma, and 23 eyes (57.5%) with group E retinoblastoma were salvaged. Of 77 eyes that were salvaged, 74 (96%) had visual acuity of 20/200 or better. Twenty four of 33 chemotherapy failures (73%) regressed with EBRT. None of the patients demonstrated second malignant neoplasm or systemic metastasis. Factors predicting tumor regression and eye salvage were bilateral

retinoblastoma and absence of subretinal fluid. Factors predicting vitreous seed regression were absence of subretinal fluid and subretinal seeds. The authors concluded that intensive management with primary high dose chemotherapy and concurrent periocular carboplatin, and EBRT selectively in chemotherapy failures, provides gratifying outcome in retinoblastoma with vitreous seeds.

Cost – Effectiveness of Femtosecond Laser – Assisted Cataract Surgery versus Phacoemulsification Cataract Surgery Affiliations
Abell RG, Vote BJ
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Robin et al performed a comparative cost-effectiveness analysis (CEA) of femtosecond laser-assisted cataract surgery (LCS) and conventional phacoemulsification cataract surgery (PCS) using a retrospective CEA using computer-based econometric modeling. The study included hypothetical cohort of patients undergoing cataract surgery in the better eye based on a review of the current literature and direct experience of authors using LCS. A cost-effectiveness decision tree model was constructed to analyze the cost-effectiveness of LCS compared with PCS. Complication rates of cataract surgery were obtained from a review of the current literature to complete the cohort of patients and outcomes. This data was incorporated with time trade-off utility values converted from visual acuity outcomes. Improvements in best-corrected visual acuity obtained from the literature were used to calculate the increase in quality adjusted life years (QALYs) in a hypothetical cohort between 6 months and 1 year after cataract surgery. This was combined with approximate costs in a cost utility analysis model to determine the incremental cost – effectiveness ratios (ICERs). Based on the simulated complication rates of PCS and LCS and assuming resultant visual acuity outcome improvement of 5% in uncomplicated cases of LCS, the cost-effectiveness (dollars spent per QALY) gained from LCS was not cost – effective at $9,286 Australian Dollars. The total QALY gain for LCS over PCS was 0.06 units. Multivariate sensitivity analyses revealed that LCS would need to significantly improve visual outcomes and complications rates over PCS, along with a reduction in cost to patient, to improve cost effectiveness. Modeling a best – case scenario of LCS with excellent visual outcomes (100%), a significant reduction in complications (0%) and a significantly reduced cost to patient (of $300) resulted in an ICER of $20,000. The authors concluded that Laser cataract surgery, irrespective of potential improvements in visual acuity outcomes and complication rates, is not cost effective at its current cost to patient when compared with cost-effectiveness benchmarks and other medical interventions, including PCS. A significant reduction in the cost to patient (via reduced consumable / click cost) would increase the likelihood of LCS being considered cost effective.

Intravitreal Aflibercept Injection for Macular Edema Resulting from Central Retinal Vein Occlusion

Korobelnik JF, Holz FG, Roider J, Ogura Y, Simader C, Schmidt – Erfurth U, Lorenz K, Honda M, Vitti R, Berliner AJ, Hiemeyer F, Stemper B, Zeitz O, Sandbrink R.
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The Gallileo study group evaluated the efficacy and safety of intravitreal aflibercept injections for treatment of macular edema secondary to central retinal vein occlusion (CRVO) in a randomized, multicenter, double-masked phase 3 study. A total of 177 treatment-naive patients with macular edema secondary to CRVO were randomized in a 3:2 ratio. Patients received either 2 mg intravitreal aflibercept or sham injections every 4 weeks for 20 weeks. From week 24 to 48, the aflibercept group received aflibercept as needed (pro re nata PRN), and the sham group continued receiving sham injections. The primary efficacy end point was the proportion of patients who gained 15 letters or more in best-corrected visual acuity (BCVA) at week 24. This study reported week 52 results including the proportion of patients who gained 15 letters or more in BCVA and the mean change from baseline BCVA and central retinal thickness. At week 52, the mean percentage of patients gaining 15 letters or more was 60.2% in the aflibercept group and 32.4% in the sham group (P¼ 0.0004). Aflibercept patients, compared with sham patients had a significantly higher mean improvement in BCVA (þ16.9 letters vs. þ3.8 letters, respectively) and reduction in central retinal thickness (-423.5 mm vs. -219.3 mm, respectively) at week 52 ($P < 0.0001$ for both). Aflibercept patients received a mean of 2.5 injections (standard deviation, 1.7 injections) during PRN dosing. The most common ocular adverse events in the aflibercept group were related to the injection procedure or the underlying disease, and included

macular edema (33.7%), increased intraocular pressure (17.3%), and eye pain (14.4%). The study concluded that treatment with intravitreal aflibercept provided significant functional and anatomic benefits after 52 weeks as compared with sham. The improvements achieved after 6 monthly doses at week 24 largely were maintained until week 52 with as-needed dosing. This new drug was also generally well tolerated.