OMICS Group Conferences
Accelerating Scientific Discovery
3rd International Conference on
Clinical & Experimental Ophthalmology
April 15-17, 2013 Hilton Chicago/Northbrook, USA

Anti-vegf treatment increases survival rate in high-risk corneal grafts

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Abstract

Our objective was to improve high-risk corneal graft survival rate by bevacizumab treatment following combined surgery: penetrating keratoplasty (PK) +/- amniotic membrane (AMT) +/- limbal stem-cell transplantation (LCAT). Fifty high-risk eyes were included: 13 had rejected graft; 12 post-herpetic and 13 other vascularized scars, 6 chemical burns, 4 ulcers and 2 Steven-Johnson syndrome. All patients underwent combined surgery ended by subconjunctival bevacizumab injection (25 mg/ml). Topical bevacizumab (2.5%) was delivered 3-4 times a day postoperatively. Grafts were prospectively (2 years) examined for clearance and presence of neovascularization (NV). Average endothelial cell loss was 22.83% after one, and 31.97% after two years (similar in all groups). Mean best corrected visual acuity had statistically significant increase in all groups from 0.03 to 0.5, with the poorest visual outcome in SJS patients.VEGF levels in recipient corneal buttons were analyzed by ELISA (R&D, USA) and real time PCR analysis. 82.5% of corneal grafts remained clear at the end of the observation period. Corneal NV was reduced in 87,5% of eyes. Recipient corneal buttons of high-risk patients secreted higher levels of VEGF (2436.74 pg/ml) as compared to keratoconus (504.7 pg/ml, $p< 0.05$). Marginal statistical significance was found in VEGFR1 with a tendency toward the up regulated VEGFR1 expression ($p=0.052$). Conclusions: Combination of subconjunctival and topical bevacizumab may offer an adjunctive measure to conventional treatment in high-risk patients. This might be explained by suppression of the angiogenic potential mediated by VEGF in such patients.

Biography

Iva Dekaris has completed her medical studies at the age of 24, PhD at 30, became associate professor at the age of 35 and professor at 40. Her postdoctoral studies were both at the Schepens Eye Research Institute of Harvard Medical School (Boston, USA) and at the „Ruđer Bošković“ research Institute in Zagreb (Croatia). She became ophthalmic-specialist in 1999 and subspecialized in corneal and cataract surgery. From 2010 she is a President of the European Eye Bank Association (EEBA) and Medical Director of the University Eye Hospital Svjetlost. She has published 42 papers in CC journals and over 250 abstracts.