In Vitro Evaluation of Endothelial Cell Loss Using the Neusidl Corneal Inserter.

Davis-Boozer D, Terry MA, Greiner MA, Holiman J, Saad HA, Alqudah AA, Li JY.

*Lions VisionGift, Portland, OR †Devers Eye Institute, Portland, OR ‡Department of Ophthalmology, Tanta Faculty of Medicine, Tanta, Egypt §UC Davis Eye Center, Sacramento, CA.

Abstract

PURPOSE:: To determine the immediate endothelial cell loss (ECL) resulting from insertion of a precut donor button using the Neusidl Corneal Inserter (NCI) and compare it with the previously published ECL resulting from insertion of a folded donor button using non-coapting forceps.

METHODS:: Ten corneas were precut for Descemet stripping automated endothelial keratoplasty and trephinated to a diameter of 8.0 mm (n = 5) or 8.5 mm (n = 5). Each tissue was placed onto the platform of a new NCI spatula and inserted into a cadaveric whole globe through a 5.2 mm incision. The tissue was carefully removed and stained with trypan blue and alizarin red to detect damaged endothelium. ECL was estimated using Adobe Photoshop planimetry. Mean ECL was compared with previously reported studies of forceps insertion with a one-sample t test, using SPSS v. 19. Geographic patterns of ECL were also documented. RESULTS:: Mean ECL was 15.6% (95% confidence interval, 13.8-17.4). We were unable to detect a difference in ECL compared with previous insertion methods studied (P < 0.001). The pattern of damage from the NCI was different than that previously seen with forceps insertion. CONCLUSION:: Immediate endothelial damage resulting from use of the NCI for insertion of Descemet stripping automated endothelial keratoplasty tissue is comparable with that seen with a standard forceps technique, but with a different damage pattern.

PMID: 23187162 [PubMed - as supplied by publisher]