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CME Session

Presentation Abstract

Program#/Poster#: 763/D813

Abstract Title: **Eye Bank Preparation, Injector Cartridge Pre-Loading, Shipping and Cold Storage of DSAEK Grafts: A Laboratory Study of Endothelial Survival**

Presentation Start/End Time: Sunday, May 01, 2011, 11:15 AM - 1:00 PM

Session Number: 130

Session Title: Lamellar Keratoplasty 

Location: Hall B/C

Reviewing Code: 173 corneal transplantation: penetrating and lamellar keratoplasty - CO

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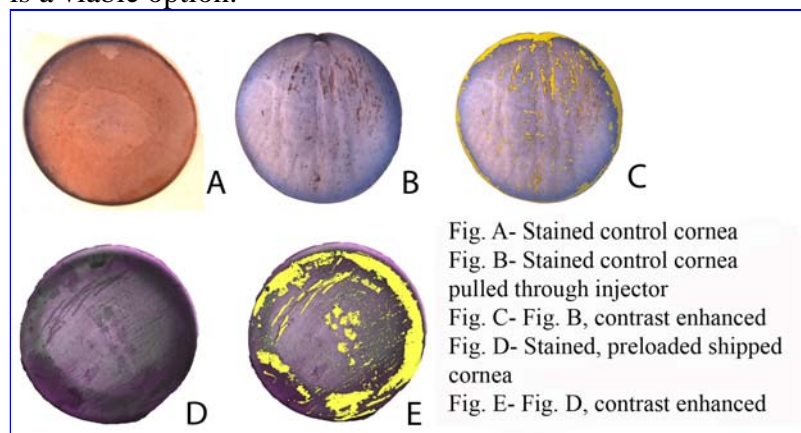
Keywords: 481 cornea: endothelium; 479 cornea: clinical science; 483 cornea: storage

Abstract Body: **Purpose:** To evaluate donor endothelial damage occurring in eye bank precut and injection cartridge preloaded tissue for Descemet's stripping automated endothelial keratoplasty (DSAEK) with overnight shipping and cold storage compared to standard procedures. **Methods:** At the eye bank, ten corneal buttons were prepared for DSAEK using an automated microkeratome and 8.5 mm trephines and loaded into intraocular lens injector cartridges (Starr, Monrovia, CA). The preloaded grafts were stored on ice in Optisol GS and shipped from Tampa, FL to Bronx, NY. Five precut control corneas were transported without injector loading. Controls were trephined and immediately loaded into injector cartridges on site. Endothelium

of corneal grafts was stained with trypan blue 0.4% and alizarin red S 0.5%. Each corneal button was imaged using a Carl Zeiss Stemi SV11 dissecting microscope (0.63x lens, 1.0 zoom). The whole graft images were analyzed and the percentage endothelial damage measured.

Results: Trephination of the donor tissue caused a peripheral ring of 11.8% (Figure A, SD=4.10) mean endothelial damage in control corneas. After control tissue was pulled through the Starr ICL injector cartridge on site, a mean area of damage of 13.9% (Figure B/C, SD=3.40) was observed. The preloaded injector group after transport demonstrated 25.5% (Figure D/E, SD=5.37) mean cell damage. The difference in endothelial damage between the onsite and preloaded buttons was statistically significant ($p=0.0003$).

Conclusions: Transport of eye bank-prepared DSAEK grafts in preloaded injector cartridges resulted in greater endothelial damage than standard on-site trephination and pull through of the Starr ICL injector cartridge. Further studies assessing differing eye bank preparation and storage techniques and devices are ongoing to determine if preloading grafts in injector cartridges prior to transport is a viable option.



CommercialRelationships: **Hyung Cho**, None; **Sunju Park**, None; **Alan Fong**, None; **David C. Gritz**, None; **Cheng Zhang**, None; **Alexandra Herzlich**, None; **Gibran Mian**, None; **Patrick Gore**, None; **Ashley Morganti**, None; **Roy Chuck**, None

Support: None

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