

In this talk logistics and outcomes of Eye bank prepared DMEK tissue will be presented.

Methods Laboratory studies of two different shipping protocols for DMEK (endothelium trifolDED inwards and endothelium rolled outwards) will be presented. Clinical outcomes and complications of patients underwent to DMEK surgery with Eye bank prepared or surgeon prepared tissue will be presented. A Cost analysis of eye bank versus surgeon prepared endothelial grafts will be also part of the presentation.

Results There was no difference in endothelial cell viability between surgeon or eye bank prepared tissue. Surgeon-stripped DMEK grafts in the laboratory investigation showed significantly higher elastic modulus and adhesion force compared to prestripped and preloaded tissues ($p < 0.0001$). In the clinical data, rebubbling rates of 48%, 40% and 15% were observed in preloaded, prestripped and surgeon-stripped DMEK grafts, respectively. The cost analysis showed that eye bank prepared tissues had higher surgical expenses compared to those prepared by the surgeon, while the post-operative care expenses were similar between the two groups

Conclusion The Eye bank prepared tissues are a valid alternative to Surgeon prepared tissue, however need to be highlighted that with current method there is a decreased adhesion forces and elastic modulus in eye bank prepared tissues that may contribute to increased rebubbling rates.

P45-A154 DMEK IN COMPLICATED EYES: INFLUENCE OF DONOR CHARACTERISTICS, OUTCOMES, AND PROGNOSIS

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Descemet membrane endothelial keratoplasty (DMEK) has become the goldstandard in the treatment of Fuchs endothelial corneal dystrophy and early stages of (pseudophakic) bullous keratopathy due to the safer ‘closed globe’ surgery, the fast and excellent visual recovery and low complication rates. In those cases, DMEK can often be performed in a standardized manner. Given the outstanding clinical outcomes, the spectrum of indications has expanded in the past years: thus, also more complex cases, such as eyes with advanced corneal edema, altered anterior chamber anatomy, failed lamellar grafts, failed penetrating keratoplasty, as well as, phakic, aphakic and vitrectomized eyes are being treated with DMEK. Although DMEK surgery in complicated eyes proved feasible, the procedure is technically more challenging because of the impaired visualization during surgery and the unpredictable graft behaviour. Surgical strategies to accomplish DMEK in complex eyes have been suggested and customization of recipient/donor characteristics (donor age, graft size) may facilitate the surgery. Still, clinical outcomes appear not as good as in standard indications and there is uncertainty concerning the long-term graft survival.

P46-A156 OUTCOME AFTER DMEK: RESULTS FROM THE PROSPECTIVE DUTCH REGISTRY

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The European Cornea and Cell Transplantation Registry (ECCTR) is a multi-national database for corneal transplantation surgery. ECCTR is co-founded by the Health Programme of the European Union, the European Society of Cataract and Refractive Surgeons (ESCRS), EuCornea and the European Eye Bank Association (EEBA). Objectives of the database are to ascertain donor tissue availability, and to analyse the safety, quality, and efficacy of corneal transplantation based on real-world outcomes including patient reported outcome measures.

We describe a web-based system with a software interface for the input and output of data relating to eye banking and corneal transplantation surgery. Output of reports or export of own data is available on the web. Data is anonymous to all users, with the exception that reporting eye banks and surgeons have access to their own data. The system was designed to allow both manual input of data via the web and transfer of data from national registries, eye banks, and electronic medical record systems.

Established in 2016, the ECCTR has collected data on more than 13,000 transplants from 15 European countries—including information on the recipient, donor and eye bank processing, transplant procedure, and two-year follow-up with graft survival and failure and patient-reported outcome measures (PROMs). We present the key findings from the registry and invite eye banks to engage with the registry.

P47-A153 TRANSPLANTATION OF CULTURED HUMAN CORNEAL ENDOTHELIAL CELLS

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Multiple research groups now theorize that tissue engineering will provide novel therapies for treating corneal endothelial cell (CEC) decompensation. In 2013, we initiated first-in-man clinical research (not an Investigational New Drug [IND] clinical trial) of a CEC injection therapy at the Kyoto Prefectural University of Medicine in Japan. In a clinical trial, cultured CECs (CECs) supplemented with a rho-associated protein kinase (ROCK) inhibitor were injected into the anterior chamber. In all of our first 11 cases, the corneal transparency was restored with the regeneration of a monolayer sheet structure of corneal endothelium. As proof of concept of CEC injection therapy was obtained, we are currently developing a cellular product to deliver this therapy to all patients. To that end, we have established an efficient cell culture protocol and