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Chairs: Vladimir Pfeifer and Petra Schollmayer

OR-082

DMEK with Young Donors – Initial Experience and Technical Approaches

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Purpose: Endothelial lamellar keratoplasty with Descemet's membrane and endothelium (DMEK) is becoming the gold standard for treating endothelial diseases of the cornea. In clinical practice, corneas from older donors are often preferred because younger donors tend to exhibit more pronounced scrolling, making graft placement more difficult. The aim of this work is to present our initial experiences with young donors and the key surgical steps that facilitate a successful procedure.

Methods: Beginning in December 2023, we performed DMEK on a series of patients with endothelial pathologies of the cornea (e.g., Fuchs dystrophy), primarily using donor tissue from younger individuals (average donor age < 45 years). The graft was prepared immediately before surgery by peeling off Descemet's membrane and staining the tissue. Descemetorhexis was carried out under a "fluid-air" exchange. The graft was inserted into the anterior chamber using an injector, aiming to achieve a "double-roll" configuration. Unfolding of the graft was accomplished using a standard tapping technique in an extremely shallow chamber, combined with digital retrobulbar pressure. Finally, a 20% SF tamponade was applied for about 10 minutes at elevated intraocular pressure. Patients were then instructed to remain in a supine position for 3–5 days, with slight alternating head rotation.

Results: In most cases, the graft was successfully unfolded, although both graft preparation and positioning of younger tissue typically required more time due to its firmer scrolling tendency. Additional gas tamponade (rebubbling) was rarely required, and visual acuity increased by at least three Snellen lines in the majority of patients. Short-term graft survival rates and endothelial cell counts were comparable to those achieved with older donors; with an appropriate surgical approach, no notable additional complications or significant increase in rebubbling rates were observed.

Conclusion: DMEK with younger donors is technically more challenging due to the graft's more pronounced scrolling, but final outcomes are excellent when extra care is taken in graft preparation and when unfolding the younger tissue. Our experience supports data from the literature indicating that, with carefully adapted surgical techniques, younger donor corneas do not present a significantly higher risk of graft detachment or endothelial cell loss.

DMEK z mladimi donorji – začetne izkušnje in tehnični pristopi

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Namen: Endotelijska lamelarna keratoplastika s Descemetovo membrano in endotelijem (DMEK) postaja zlati standard za zdravljenje endotelijskih bolezni roženice. V klinični praksi pogosto raje uporabimo donorske roženice starejših oseb, saj pri mlajših donorjih opazimo izrazitejšo zvijanje in s tem zahtevnejšo namestitev presadka. Namen tega dela je predstaviti začetne izkušnje z mladimi donorji in ključne kirurške korake, ki pripomorejo k uspešni izvedbi posega.

Metode: Od decembra leta 2023 smo pri seriji bolnikov z endotelijskimi okvarami roženice (npr. Fuchsova distrofija) uporabili DMEK presadke, odvzete pretežno od mlajših donorjev (povprečna starost < 45 let). Presadek smo pripravili tik pred operacijo z luščenjem Descemetove membrane in barvanjem tkiva. Descemetorekso smo opravili pod »fluid-air« izmenjavo. Vstavitve v sprednji prekat je potekala z uporabo injektorja, pri čemer smo v injektorju skušali ustvariti "double-roll". Za razgrnitev presadka smo uporabili standardno tapping tehniko s izredno plitkim prekatom in digitalnim retrobulbarnim pritiskom. Na koncu je bila plinska tamponada z 20% SF6 aplicirana za približno 10 minut pri povišanem očesnem tlaku. Bolniki so nato 3–5 dni upoštevali navodilo o hrbtnem pozicioniranju s plinom v sprednjem prekatu rahlim rotiranjem glave.

Rezultati: Pri večini primerov je bil presadek uspešno razgrnjen, čeprav sta priprava in nato pozicioniranje mladega tkiva običajno zahtevali daljši čas zaradi čvrstejši zvitosti. Ponovna plinska tamponada (rebubbling) je bila potrebna redko, vidna ostrina pa se je pri večini bolnikov povečala najmanj tri vrstice po Snellenu. Kratkoročne stopnje preživetja presadkov in števila preživetih endotelijskih celic so primerljive s tistimi pri uporabi starejših donorjev, ob ustreznem kirurškem pristopu pa ni opaziti pomembnejših dodatnih zapletov ali pomenljivega povišanja stopnje rebubblinga.

Zaključek: DMEK z mladimi donorji je tehnično zahtevnejši zaradi izrazitejšega zvitja presadka, vendar so končni izidi

odlični, z nekaj več pozornosti pri pripravi in potrpežljivosti pri razgrnitvi mladega tkiva. Izkušnje potrjujejo podatke iz literature, da ob skrbno prilagojenih kirurških korakih mlajša donorska roženica ne pomeni signifikantno višjega tveganja za odstop presadka ali izgubo endotelijskih celic.