Utilizzo delle cornee disidratate nei trapianti di cornea

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OSPEDALI PRIVATI FORLÌ

LiRFO

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Deep Anterior Lamellar Keratoplasty Using Dehydrated versus Standard Organ Culture–Stored Donor Corneas: Prospective Randomized Trial

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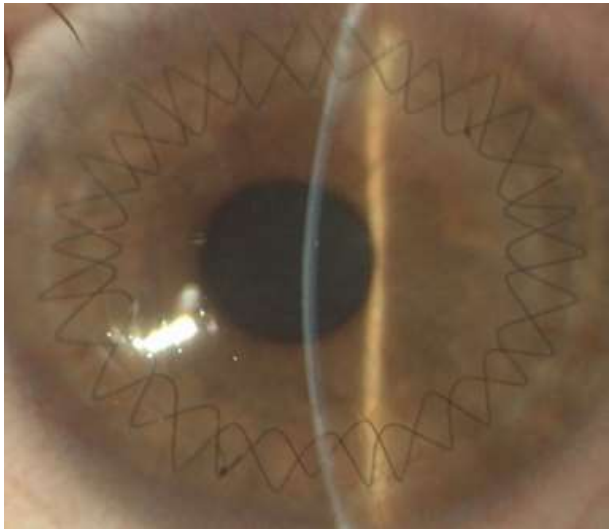
COVID 19 BACKGROUND

- **Sudden Disruption in Global Corneal Tissue Procurement and Distribution**

- **Need to Strengthen Our Resilience to Factors that Impact Corneal Availability**

COVID 19 BACKGROUND

Explore the Feasibility of Dehydrated Corneal Tissue for DALK



METHODS

- **Prospective, Randomized, Single-Center, Instituionally Funded, 2-Arm, Parallel-Group Noninferiority Trial**
- **Comparison between Clinical Outcomes of Dehydrated Donor Corneas Used for DALK and Standard Organ Culture Donor Corneas Used for DALK**
- **Modified Big-Bubble DALK Performed by 2 Experienced corneal surgeons (M.B. and C.B.)**

DONOR PREPARATION

- **Donor Corneal Grafts Were Prepared and Stored in the Fondazione Banca degli Occhi del Veneto Onlus**

- **Standard Organ Culture Corneoscleral Buttons Were Stored in Culture Medium Containing 2% (volume/volume) Newborn Calf Serum in Minimum Essential Medium-Earle, 25 mmol/1 4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid, 1 mmol/1 Pyruvate, 2 mmol/1 L-Glutamine, 100 IU/ml Penicillin, 100 mg/ml Streptomycin, and 25 mg/ml Amphotericin B at 31 C for up to 28 Days**

RESULTS

- **Postoperative BSCVA Did Not Significantly Differ between Groups**
- **No Significant Differences between Groups in Terms of Post-Operative RA and ECD**
- **Complete Re-Epithelialization Achieved by Day 7 in All Patients (100%)**

RESULTS

Table 2. Postoperative Outcomes Comparing Deep Anterior Lamellar Keratoplasty Using Dehydrated and Standard Organ Culture-Stored Corneas

Outcome	Dehydrated Cornea	Standard Organ Culture	*P* Value*
BSCVA (logMAR)			
6 mos	0.24 ± 0.17 (0.19–0.30)	0.21 ± 0.15 (0.16–0.27)	0.471
12 mos	0.15 ± 0.18 (0.09–0.22)	0.17 ± 0.17 (0.10–0.23)	0.764
RA (D)			
6 mos	3.02 ± 1.37 (2.51–3.53)	3.06 ± 1.15 (2.60–3.51)	0.909
12 mos	2.78 ± 1.42 (2.25–3.31)	2.88 ± 1.09 (2.44–3.31)	0.777
ECD (cells/mm^2)			
6 mos	2166 ± 235 (2078–2254)	2099 ± 245 (2008–2190)	0.287
12 mos	2138 ± 297 (2027–2249)	2078 ± 217 (1998–2160)	0.379

BSCVA = best spectacle-corrected visual acuity; D = diopter; ECD = endothelial cell density; logMAR = logarithm of the minimum angle of resolution; RA= refractive astigmatism.
Data are presented as mean ± standard deviation (95% confidence interval).
*Linear mixed-model analysis.

RESULTS

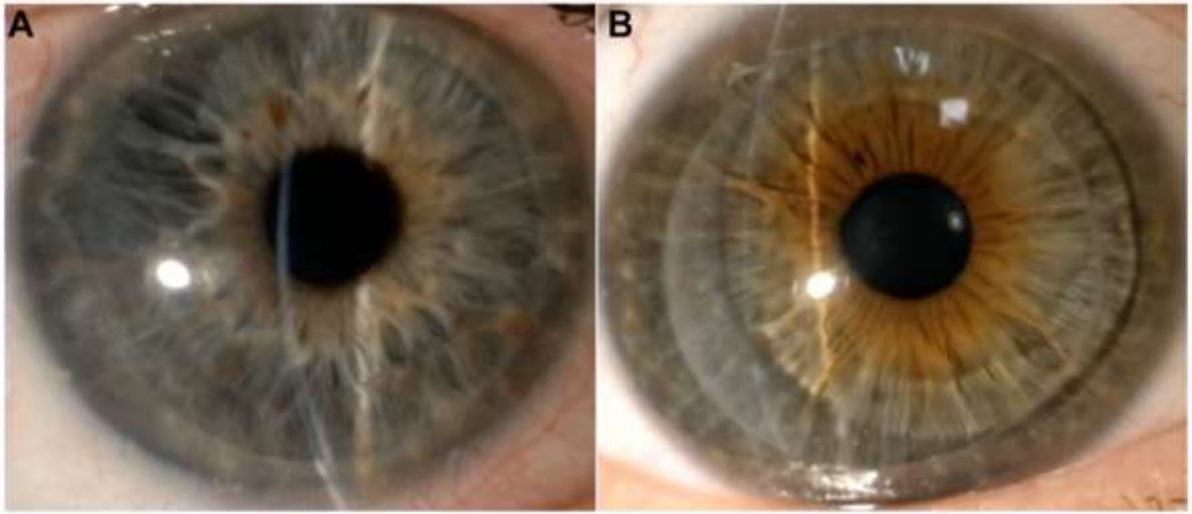


Figure 2. Postoperative images obtained 1 year after surgery showing patients who underwent deep anterior lamellar keratoplasty using corneas **(A)** stored in standard organ culture and **(B)** that were dehydrated.

CONCLUSIONS

- **Dehydrated Corneas Use is non-Inferior to Standard Organ Culture Donor Corneas Use for DALK**
- **Corneal Tissue Dehydration Represents a viable solution to Allow Long-Term Cornea Preservation and to Reduce Wastage of Unused Corneas**

Thank you!

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