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Corneal Transplant utilizing lyophilized corneas

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OBJECTIVE: Comparative analysis between corneal grafts preserved in optisol GSÔ and grafts preserved by lyophilization for anterior lamellar transplant for keratoconus. **METHODS:** Previously, we realized an experimental study to assure the best technique to lyophilize corneal tissue by optical and electronic microscopic examination. Thereafter, we realized a randomized prospective clinical assay among 20 patients with keratoconus, which did not have deep corneal opacities and were indicated for anterior lamellar transplant. Patients were divided into 2 groups. In the control group it was utilized grafts preserved in optisol GSÔ and in the intervention group, it was utilized lyophilized grafts. Patients were evaluated at the postoperative on visual acuity, donors corneal transparency, cellularity by the confocal microscopy, topography, orbscanÔ, pachymetry, specular microscopy and the examination made by the masked examiner. **RESULTS:** Lyophilization using a crioprotector sacarosis 2,3 mol and rehydration with balanced saline solution for 30 minutes was considered the choice method in this research. Up to the 3rd month postoperative, there was no difference in visual acuity between the groups. Uncorrected visual acuity in 9 of 10 patients of both groups was < 20/70. Stenopeic visual acuity in 6/10 patients of both groups ranged from 20/60 to 20/40 and in 4/10 in both groups was better than 20/30. Corneal transparency was considered, by the masked examiner, excellent in 4/10 lyophilized corneas and in 6/10 optisol corneas; good in 6/10 lyophilized and 3/10 optisol corneas and regular in 1/10 corneas preserved in optisol. None of the tissues evaluated was considered abnormal by the masked examiner. Confocal microscopy examination showed 1/10 corneas preserved in optisol as acellular in 21 days of postoperative and 10/10 as cellular within 3 months. Nine out of 10 lyophilized corneas were acellular in 21 days of postoperative, while only 4/10 of these corneas were acellular within 3 months. **CONCLUSION:** Lyophilization is a long duration and effective method, for preserving corneas for anterior lamellar transplant.