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FIVE YEAR RESULTS OF BOWMAN LAYER TRANSPLANTATION IN EYES WITH PROGRESSIVE, ADVANCED KERATOCONUS

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Rezumat

Rezultatele de cinci ani ale transplantului stratului Bowman în ochii cu keratocon progresiv, avansat

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Keratoconusul este o patologie oculară multifactorială asimetrică a corneei, caracterizată prin protruzia progresivă și subțierea corneei, ceea ce duce la scăderea acuității vizuale. Cross-linkingul este unica metodă dovedită științific ca fiind eficientă în stoparea progresării keratoconusului, dar ea nu poate fi aplicată la o grosime a corneei mai mică ca 400 μm. Transplantul membranei Bowman a fost aplicat pe 52 de pacienți cu keratoconus avansat, având rezultate postoperatorii foarte bune și fără complicații.

Cuvinte-cheie: *transplant de strat Bowman, keratoconus, chirurgie*

Introduction. Keratoconus (KC) – a multifactorial, asymmetric corneal disorder characterized by progressive corneal protrusion and thinning, leading to increasing visual acuity. Corneal collagen cross-linking (CXL) is the only proven intervention that can halt disease progression in KC, but the corneal thickness of less than 400 μm is considered a contraindication. Penetrating keratoplasty (PK) or deep anterior lamellar keratoplasty (DALK) are treatment options for the advanced cases of KC. In advanced studies, scleral contact lenses are the safe save and effective way of visual acuity optimizing for patients.

Purpose. To study the results after 5 - year of Bowman layer transplantation (BLT) in to the stromal pocket in eyes with advanced keratoconus (KC). Center for Eye Diseases

Materials and methods. Fifty two eyes of 52 patients with average age 28 years (range 5,3) with advanced KC which are not suitable for ultraviolet cross-linking or intrastromal corneal rings, CTP (corneal thinnest point) ≤ 400 μm and Kmax (maximum keratometry) ≤ 58 D.) underwent BLT by one experienced surgeon in Helmholtz National Medical Research. Preoperative patient examination included recording the decimal best spectacle-corrected visual acuity (BSCVA) determined on the Snellen chart, best contact (scleral) lens corrected visual acuity (BCLVA), Scheimpflug based corneal tomography, slit lamp biomicroscopy, optical coherence tomography, endothelial cell density (ECD) evalu-

ation. The same examinations were performed 3, 6 and every 12 months postoperatively in all cases. All patients reached a minimum follow-up of 14 months (mean follow-up 30,7 months, range±8,9).

Results. There were no intraoperative or postoperative complications. In our cases of 52 eyes underwent BLT into a manually dissected mid-stromal pocket with an average follow-up 30,7 months, the Kmax and BCLVA were stable. The mean CTP was decreased from an average preoperative value of 398±37 to 378 ± 54,3 microns and no decrease in endothelial cell density was found. Topical treatment with antibiotics, dexamethasone and lubricants four times daily during 4 weeks. Therefore, also after BL transplantation, patients should be counseled about the possible impact of eye-rubbing, and allergies may need closer monitoring and treatment. No postoperative complications were observed in any of the other cases

Conclusion. In this study, the clinical outcome of BLT stabilizes the KC and saves host tissue as it is palliative care. Extraocular technique and absence of corneal sutures are the main advantages of BLT. There were no complications and lost lines more than 1 of BCLVA. In this group of patients, BLT could become a supplementary treatment option in the management of advanced keratoconus to postpone PK or DALK and to minimize the risk of long-term complications and save preoperative BCLVA.

Keywords: Bowman layer transplantation, keratoconus, surgery