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AUTHORS

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Study Group:

ABSTRACT

TITLE: Central and peripheral rebound tonometry in myopic LASIK without and with corneal collagen crosslinking

ABSTRACT BODY:

Purpose: To study the influence of myopic laser in situ keratomileusis (LASIK) without and with corneal collagen crosslinking (CXL) in rebound tonometry measured at the central and peripheral cornea.

Methods: Thirty-six myopic patients (12 male and 25 female, mean age 26.1 years, from 18 to 38) received uneventful bilateral LASIK were recruited. Among them, half had CXL performed during the surgery. Intraocular pressure (IOP) was measured by rebound tonometry (iCare, Tiotat, Helsinki, Finalnd) at the central cornea (iCare-C) and temporal cornea 3mm away from the limbus (iCare-T), at baseline and one month after the surgery. With no significant difference between the two eyes before surgery in terms of myopia (spherical equivalent), central corneal thickness (CCT), iCare-C and iCare-T, only the right eye was used in the analysis.

Results: Repeated Measures Analysis of Variance showed significant difference in the four IOP results (F = 53.4, p < 0.001). Pre-operative iCare-C was similar to iCare-T (Dunnett post hoc test: p > 0.05). There was significant reduction of post-operative iCare-C (by 4.0 +/- 2.6mmHg) and iCare-T (by 2.1 +/- 3.0mmHg) compared with the pre-operative iCare-C (Dunnett post hoc tests: p < 0.05). When the subjects were divided into with and without CXL groups, they shared similar pre-operative CCT (without: 552.6 +/- 26.9um; with: 536.1 +/- 30.8um; unpaired t-test: t = 2.03, p = 0.09) and iCare-C (without: 16.9 +/- 1.7mmHg; with: 15.4 +/- 3.3mmHg; Mann-Whitney: p = 0.16). The with CXL group had greater ablation for a higher myopic correction (with: 125.6 +/- 34.6um; without: 80.1 +/- 34.5um; unpaired t-test: t = 2.03, p < 0.001), but the iCare-C reduction after surgery was less (with: 3.3 +/- 2.7mmHg; without: 4.9 +/- 2.3mmHg). The without CXL group still showed significant reduction in post-operative iCare-T compared with the pre-operative iCare-C (by 2.7 +/- 2.6mmHg). The IOP reduction in the with CXL group was not significant (by 0.2 +/- 3.3mmHg).

Conclusions: Myopia LASIK affected rebound tonometry when it was performed at the central cornea. Peripheral rebound tonometry provided good estimation, especially LASIK with CXL, on the pre-operative IOP.

(No Image Selected)

DETAILS
TRAVEL GRANTS and AWARDS APPLICATIONS

AWARDS: