ABSTRACT

COMPARATIVE STUDY OF HIGHER ORDER ABERRATIONS AFTER LASIK BETWEEN THIN AND THICK FLAP

(Longitudinal Observational Study at Undaan Eye Hospital Surabaya)

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Introduction: Higher order aberrations is one of LASIK's late postoperative complications. LASIK can correct the lower order aberrations. Lower order aberrations is 90% of total aberrations, the rest is higher order aberrations, which can not be corrected with glasses. Creation of corneal flap is one important step in LASIK procedure. After flap creation, there were varies change in corneal aberration.

Objective: To compare higher order aberrations change after LASIK between thin and thick flap, also determine of any changes in higher order aberrations after LASIK.

Method: This study involved 24 eyes of 12 myopia or myopic astigmatism patients who underwent LASIK. Each patient underwent a routine examination pre-LASIK and determination of flap thickness as determined by the residual stromal bed thickness. Sixteen patients underwent LASIK with thin flap using automated disposable microkeratome Moria M2 SU90 and 8 patients with thick flap using Moria M2 SU130 in flap creation. Intended flap thickness of microkeratome Moria M2 SU 90 is 110 μm and 150 μm for Moria M2 SU 130. Higher order aberations were measure before, day 7, and day 30 after LASIK using Wavescan VISX CustomVue.

Result: There were no difference in coma, trefoil, and spherical aberration after LASIK between thin and thick flap group. Coma significantly increased by 1 month after LASIK ($p<0.05$). Spherical aberration significantly increased by 7 days after LASIK ($p<0.05$) and remained increased through 30 days ($p<0.05$).

Conclusion: Different flap thickness created by microkeratome did not offer any differences in changes of higher order aberrations through 30 days after LASIK.

Keywords: Higher order aberrations, flap thickness, LASIK.