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New modified equation of contact lens method in determining post myopic laser refractive surgery corneal power

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Abstract

Introduction: The purpose of this study was to derive a modified equation for contact lens method (CLM) in calculating post myopic laser refractive surgery corneal power. Methods: A total of 93 subjects who underwent myopic laser refractive surgery at IIUM Eye Specialist Clinic were recruited. The accuracy of postoperative corneal power using the standard CLM and newly-derived contact lens modified method (CLM_{mod}) were compared to the standard comparison method ; the historical method (HM). The CLM_{mod} equation was derived by adjusting postoperative corneal power of CLM according to amount of refractive change. Results: The mean postoperative corneal power using standard CLM was significantly higher than HM (mean difference: -0.24 D, $p < 0.001$). Fifty seven percent ($n = 53$ eyes) of the standard CLM results were within ±0.50 D of HM results. The difference between postoperative corneal power using standard CLM and HM increased significantly with the amount of refractive change ($r = 0.835$; $p < 0.001$). The mean postoperative corneal power of CLM_{mod} showed that there was no statistical significant difference compared to the HM results (mean

difference: 0.00 D, p= 0.964). Eighty eight percent (n = 82 eyes) of the CLM_{mod} results were within ±0.50 D of HM results with improvement of 31% from the standard CLM results. Conclusion: The CLM_{mod} equation provides more accurate calculation in determining post myopic laser refractive surgery corneal power. In near future, this modified equation can be used as an alternative equation to calculate postoperative corneal power when the preoperative data is unavailable.

Author keywords

Biometry post LASIK; Contact lens method; Contact lens modified method; Equation; Myopic laser refractive surgery

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