

Intraocular Lens Power Calculation in a Posterior Chamber Phakic Intraocular Lens Implanted Eye

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Abstract

Purpose: To evaluate the effect of Eyecryl posterior chamber phakic intraocular lens (pIOL) on axial length measurement and intraocular lens power calculation.

Methods: Axial length (AL), keratometry (K), and IOL power calculations were compared at monthly preoperative and postoperative visits (preoperative vs 1-month). Preoperative IOL power (calculated using preoperative K and AL) was compared with a re-calculation where the pIOL was assumed to be in the posterior chamber (calculated using preoperative K value and postoperative AL).

Results: Thirty-nine eyes of 39 patients were included. The mean preoperative AL and postoperative AL were 27.02 ± 1.50 and 27.17 ± 1.52 mm ($p < 0.001$), respectively. The mean preoperative and recalculated IOL powers to achieve emmetropia were 9.40 ± 3.35 and 8.98 ± 3.37 D ($p < 0.001$) with SRK-T formula, 8.82 ± 3.54 and 8.47 ± 3.60 ($p = 0.02$) with Holladay I formula, and 9.78 ± 3.43 and 9.44 ± 3.50 ($p = 0.013$) with Hoffer Q formula.

Conclusion: The presence of Eyecryl pIOL in the posterior chamber results in a small increase in the AL measurement, and this might result in a corresponding hypermetropic shift in the desired refraction.

Keywords: Axial length; Intraocular lens power calculation; Myopia; Optical biometry; Phakic intraocular lens.