

Aphakic Refraction Method for IOL Power Calculation in Patients with Previous Laser Refractive Surgery

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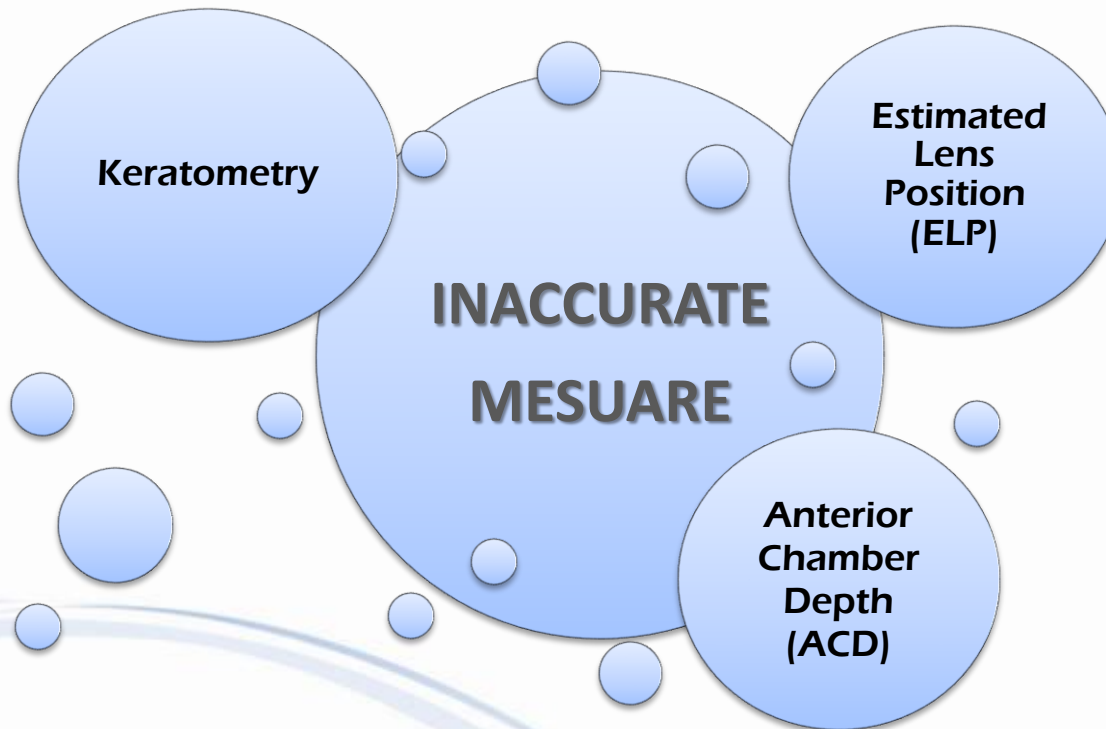
BACKGROUND

- **The determination of intraocular lens (IOL) power required for eyes having cataract extraction after laser in situ keratomileusis (LASIK) is known to be difficult and fraught with potential error.¹**
- **This is due to problematic determination of corneal curvature because standard keratometry is inaccurate in post-LASIK eyes.¹**
- **Despite efforts to predict IOL power from a number of traditional or modified formulas, no single method stands out as universally reliable.²**

1. Mackool R, et all. "Intraocular lens power calculation after laser in situ keratomileusis: Aphakic refraction technique". J Cataract Refract Surg - vol 32, march 2006

2. Ianchulev T, et all. "Intraoperative optical refractive biometry for intraocular lens power estimation without axial length and keratometry measurements". J Cataract Refractive Surg - Vol 31, August 2005

Which are the problems for eyes after refractive surgery?



Courtesy of: Escaf L. MD. "Catarata y refractiva previa"
ASCRS, San Francisco, California, Abril 2013.

Haigis W. Intraocular lens calculation after refractive surgery.
European Ophthalmic Review. 2012;6(1):21-24.



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PURPOSE

To evaluate the visual and refractive results of aphakic refraction method for IOL power calculation in patients with previous laser refractive surgery.



METHODS

- **Prospective, longitudinal study.**
- **35 eyes of 20 patients with a history of LASIK without data information and cataracts, underwent conventional phacoemulsification surgery with IOL implantation calculated by aphakic refraction method.**
- **Manifest refraction, distance and near visual acuity uncorrected (UCVA) and corrected (BCVA) was evaluated preoperatively and three months after surgery.**
- **Setting: Instituto Docente de Especialidades Oftalmológicas, IDEO. Maracaibo – Venezuela.**



APHAKIC REFRACTION METHOD

LIO = Aphakic Refraction (Spherical Equivalent) x 2.00

- **Cataract extraction was performed under peribulbar anesthesia using phacoemulsification through a self-sealing clear corneal incision.**
- **Approximately 5 days later, manifest refraction was performed.**
- **IOL implantation with the IOL power calculated on the basis of aphakic refraction.**



Statistical analysis:

- All data were collected in an Excel database (Microsoft Office 2010, Microsoft Corp.).
- SPSS for Windows software was performed (version 16.0, SPSS, Inc.) and results were expressed as mean, standard deviation (SD), absolute numbers and percentages.



RESULTS

Table No.1. Aphakic refraction technique results.

| | Spherical Equivalent | UCDVA LogMar | BCDVA LogMar | UCNVA LogMar |
|--------------------------------|---------------------------------|-------------------------|-------------------------|-------------------------|
| MEAN | -1.19 D | 0.12 | 0,26 | 0,14 |
| STANDARD DESVIATION (SD) | ± 0.99 SD | ± 0.09 SD | ± 0.19 SD | ± 0.07 SD |

- 57.14% of patients with EE ± 1.00 D
- 28.57% SE ± 0.50D
- 88,57% obtained a distant BCVA ≤ 20/30
- 98% achieved an improvement of near vision.



CONCLUSIONS:

The aphakic refraction method for calculating IOL power previous laser refractive surgery is an alternative in patients with a history of refractive surgery without access to medical records prior to the intervention.





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