CHARACTERIZATION OF VAULT WITH TWO MODELS OF POSTERIOR CHAMBER PHAKIC INTRAOCULAR LENSES

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Abstract

Purpose: To evaluate and compare the dynamic vault range (DVR) as well as the asymmetry of the vault during a 3-month follow-up after the implantation of two posterior chamber phakic intraocular lenses (pIOLs).

Setting: Aver Clinic, Madrid, Spain.

Design: Prospective comparative study.

Methods: One hundred and nineteen eyes (65 patients) that underwent refractive surgical correction with implantation of one of two distinct pIOLs were enrolled: Eyecryl Phakic from Biotech Vision Care (Eyecryl group, 72 eyes) and Evo Visian Implantable Contact Lens from Staar Surgical (ICL group, 47 eyes). Besides evaluation of visual acuity, refraction, and ocular integrity, the pIOL vault was measured centrally and at 2 mm nasally and temporally as well as the DVR from photopic (50 lux) to mesopic (10 lux) illuminations conditions.

Results: No significant differences were found between pIOL groups in visual and refractive outcomes ($p \geq 0.454$). No significant differences between groups were found in central (523.72±168.4 vs. 494.16±156.7 µm, $p=0.248$) and temporal vault (499.43±155.8 vs. 431.28±150.5 µm, $p=0.067$). However, nasal vault was significantly lower in ICL group (465.6±149.1 vs. 375.4±144.0 µm, $p=0.045$). A trend to a larger DVR was observed in the ICL group, although differences between groups did not reach statistical significance (54.00±36.39 vs. 86.5±57.9 µm $p=0.070$). The pIOL diameter only correlated significantly with vault measurements in ICL group ($r \geq 0.650$, $p<0.001$).

Conclusions: The Eyecryl pIOL shows more symmetric vaults and a trend to fewer light-induced changes in the central vault compared to the ICL pIOL. The clinical relevance of this finding should be investigated further.

Figures

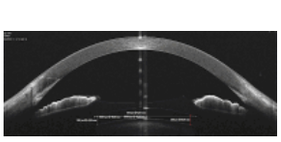


Figure 1. Measurement procedure of the vault...

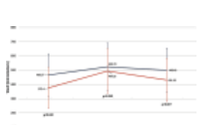


Figure 2. Mean central and peripheral vaults...

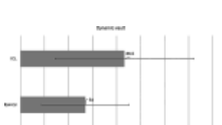


Figure 3. Mean dynamic vault at 3...

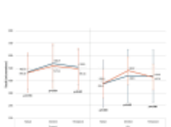


Figure 4. Mean central and peripheral vaults...

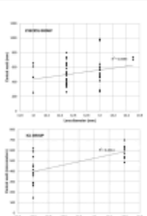
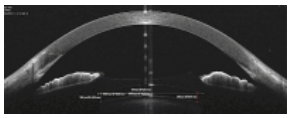


Figure 5. Scatterplot showing the relationship between...



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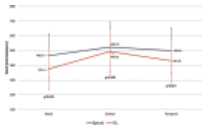

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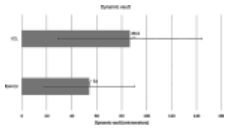

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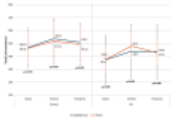

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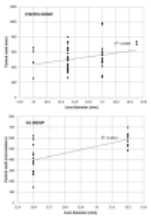

Figure 5. Scatterplot showing the relationship between...

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