Phakic Posterior Chamber Intraocular Lens for Refractive Correction

Keissy Sousa, Tiago Monteiro, Nuno Franqueira, Fernando Faria Correia, Ricardo Leite, José Mendes, Fernando Vaz
Hospital de Braga, Portugal
September 2014

No financial interests are involved.
Phakic Posterior Chamber IOL - ICL

Phakic IOL has been increasingly performed to correct ametropia.

High predictability, optical quality of the eye, different complications related to ablation procedures.

Visian IOL – STAAR® – ICL: designed to be placed in PC with the haptic zone resting on the ciliary sulcus and an anterior vault to avoid lens contact.

Access predictability, efficacy, safety and stability in patients who received an implantable collamer lens (ICL) V4C model to correct moderate to high myopia and astigmatism.

No financial interests are involved.
Material and Methods

• Study Type
  – Retrospective Study since June 2012 until July 2013
  – Patients submitted to ICL V4C implantation for myopia and astigmatism correction.

• Inclusion Criteria
  – Age: 20 and 45 years old
  – Clear lens
  – ACD > 2.8mm
  – Myopia >2.0D and/or astigmatism >1.5D
  – Stable refraction

• Main Outcome Measures
  – Follow-up ≥12 months
  – UCVA and BCVA
  – Subjective refraction
  – Vault and ECC evaluation

• IOL Power and Diameter
  – Subjective refraction
  – ACD
  – Keratometric measurement:
    topography Pentacam® HR, Oculus
  – Horizontal angle-angle distance:
    OCT Visante Omni®, Carl Zeiss
Demographic Results

**Sample**
- 57 eyes and 36 patients
- Included:
  - 34 patients
  - 54 eyes
- RE: 51,9% (26 eyes)
- LE: 46,3% (24 eyes)

**Other Refractive Conditions - 16 eyes (29,6%)**
- **Ambliopia**: 1 (1,9%)
- **Anisometropia**: 2 (3,7%)
- **Intracorneal Ring Segments**: 6 (11,3%)
- **Keratoconus**: 1 (1,9%)
- **Piggy-back**: 2 (37,3%)
- **Post-lasik**: 3 (56,6%)
- **Post-PK**: 1 (1,9%)

**ICL size**
- **12,60**: 8 eyes (14,8%)
- **13,20**: 28 eyes (51,9%)
- **13,70**: 11 (20,4%)

**Average Measurements**
- ACD = 3,31±0,26 mm
- Vertical ATA = 12,1±0,37 mm
- Horizontal ATA = 12,21 ±0,39 mm
- WTW = 12,42±0,39 mm
Refractive Results – Spherical Equivalent

Previous SE: $-4.84 \pm 4.64$ D
Post SE: $0.12 \pm 0.60$ D

Pearson correlation: $p = 0.027$
Refractive Results – Visual Acuity: All patients

- Visual Acuity:
  - Previous BCVA: 0.80 ± 0.25
  - Post UCVA: 0.81 ± 0.24
  - Post BCVA: 0.84 ± 0.20

- Efficacy Index: 1.01
- Security Index: 1.05
Refractive Results – Visual Acuity: Excluding Refractive Conditions

Previous BCVA: 0.90 ± 0.17
Post UCVA: 0.92 ± 0.15
Post BCVA: 0.93±0.12

Efficacy Index: 1.14
Security Index: 1.03
Vault
Endothelial Cell Count

Previous ECC: 2766±228 cells
Post ECC: 2647 ± 392 cells

t-paired test: \( p = 0.126 \)
N=22
## Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>Patients affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Halos / Glare</td>
<td>7 (12.9%)</td>
</tr>
<tr>
<td>Pupillary Block</td>
<td>1 (0.2%)</td>
</tr>
<tr>
<td>Cataract</td>
<td>0</td>
</tr>
<tr>
<td>Retinal Detachment</td>
<td>0</td>
</tr>
<tr>
<td>Infection / Endophthalmitis</td>
<td>0</td>
</tr>
</tbody>
</table>
Conclusions

ICL is a predictable and safe procedure.

Pre-surgical accurate measurements are essential for a good ICL size choice.

Final Spherical Equivalents are near 0. Efficacy and Security Index are both >1.

Vault distribution complies other studies.

No significant endothelial cell count loss is observed.

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