Can accurate postoperative refraction be achieved?

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Key issues
- Biocompatibility
- Injectable through 3mm incision
- Centration
- Unwanted imagery
- Secondary intervention
- Dioptic accuracy

Introduction
One of the key issues for cataract surgeons today is whether or not they can produce a refractive result that agrees with the preoperative target. Assuming a facility for modern biomicroscopy, keratometry and lens power calculation, postoperative stability of the lens implanted is also necessary for an accurate result. In order to ascertain what may be achieved we have used in a large cohort of patients a hydrophilic implant of modern design, but which also stands up well to the other key issues of biocompatibility, centration, lack of capsular phimosis and lack of unwanted imagery.

Results

Table 1 Reason for visual acuity less than 6/9 at one month

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Hoffer Q</th>
<th>SRK-T</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-22.0</td>
<td>12/20</td>
<td>16/20</td>
<td>14/20</td>
</tr>
<tr>
<td>22.1-26.0</td>
<td>16/20</td>
<td>19/20</td>
<td>17/20</td>
</tr>
<tr>
<td>&gt;26.0</td>
<td>19/20</td>
<td>21/20</td>
<td>19/20</td>
</tr>
</tbody>
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Conclusions

The ability of the unique haptic design of the Centerflex™ to resist capsular contraction is shown by in-vitro compression force characteristics in Fig.5. In a laboratory setting with a test diameter of less than 10.0 mm (simulating a contracting capsular bag) the lens withstood 7.93 kN Newtons before buckling, whereas in comparison the floppy loops of the single-piece acrylic (Acricon 6302A) offered virtually no resistance and withstood only 0.29 kN.

In 494 of the 500 eyes of the study we found the refraction at one week and one month to differ by less than 0.5 D SE. This refraction stability so soon after surgery tends to confirm that lens stability and is a suggested reason for the results that have been achieved.

Best results (Table 2) appear to be obtained from using the Hoffer Q formula for axial length less than 22.0 mm, the SRK(T) for length greater than 26.0 mm and a mean of the two formulae for lengths between 22.0 and 26.0 mm.

References