New visual acuity charts: preliminary study on children with ophthalmopathology


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The aim of the study

To compare three charts for visual acuity assessment in view of repeatability of test and retest measurements in children with opthalmopathy.

Lea-screener

IITP chart (wide-space design)

IITP-V chart (proportional design)
Subjects

35 children with ophthalmopathy:
- light and moderate amblyopia - 21,
- optic nerve atrophy - 11,
- retinopathy – 3.

Average age - 11.4 ± 0.4 years.

If needed, optical correction was provided.
Methods

Visual acuity were assessed twice (test and retest assessment) by means of three visual acuity charts in random order. The viewing distance was 4 m. The measurements were monocular and binocular.
Results

The data appeared to be not distributed normally (Shapiro–Wilk test, p<0.05), test and retest results were compared by Wilcoxon signed-rank test.

**Average visual acuities±SE (logMAR)**

<table>
<thead>
<tr>
<th></th>
<th>Lea</th>
<th>IITP</th>
<th>IITP-V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>0.34±0.04</td>
<td>0.30±0.03</td>
<td>0.33±0.03</td>
</tr>
<tr>
<td>Retest</td>
<td>0.31±0.04</td>
<td>0.28±0.03</td>
<td>0.33±0.03</td>
</tr>
</tbody>
</table>

The results of test and retest were significantly different for LEA chart (p=0.033), which means bad repeatability. No significant difference between test and retest were obtained for IITP and IITP-V charts (p=0.336 and p=0.775, accordingly), which means better repeatability, than in case of Lea chart.
Conclusions

According to our data, IITP and IITP-V charts show better repeatability in test-retest measurements.

Repeatability of results is very important in scientific investigations, visual acuity monitoring, age dynamic assessment and evaluation of treatment results.

Thank you for your attention!