New visual acuity charts: preliminary study on children with ophthalmopathology

Kazakova A.A.*, Medvedev I.B., Gracheva M.A.,
Pokrovskiy D.F., Rychkova S.I.

Institute for Information Transmission Problems (Kharkevich Institute),
Russian Academy of Sciences, Russia, Moscow.
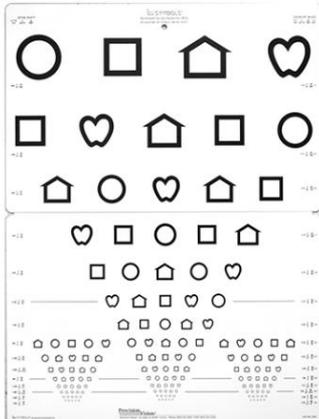Pirogov Russian National Research Medical University, Russia, Moscow.
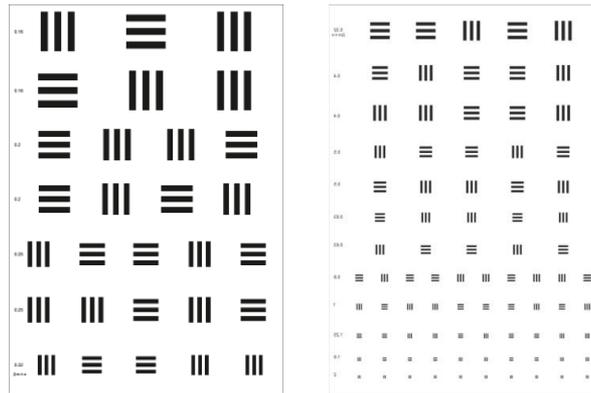
*AnneKazakova@mail.ru

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 opthalmopathology.
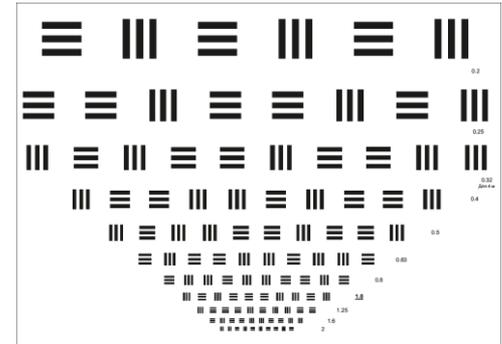
Lea-screener

IITP chart
(wide-space design)

IITP-V chart
(proportional design)

Subjects

35 children with ophthalmopathology:

- 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)

	Lea	IITP	IITP-V
Test	0.34±0.04	0.30±0.03	0.33±0.03
Retest	0.31±0.04	0.28±0.03	0.33±0.03

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!