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Comparaison of the Plusoptix A12 and the 2WIN with the Retinomax K-plus 3 in a pediatric population

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Abstract

Purpose

To compare non-cycloplegic refractive results obtained with the Plusoptix A12 (Plusoptix, Germany) and the 2WIN (Adaptica, Italia), to Retinomax K-Plus 3 (Righton, Virginia) in a pediatric cohort.

Methods

106 eyes of 53 childrens were included prospectively between March 2015 and June 2015. On each eye, no-cycloplegic refraction was performed with the Plusoptix A12 and the 2WIN, and cycloplegic refraction was performed with the Retinomax K-Plus 3, which was used as gold-standard reference method. All data from each device, concerning sphere and cylinder power and axis, were compared to cycloplegic refractive measurements. The measures were considered reliable when the difference on sphere or cylinder power was between -0.5 D and $+0.5$ D, and when the difference on axis was less than 10° .

Results

The mean age was 7.3 years (range, 1–17 years). Regarding sphere, measures were reliable in 37.7% for the right eye and 35.8% for the left eye with the Plusoptix A12 and in 35.8% with the 2WIN, regardless the eye. The sphere was underestimated respectively in 59.3 and 57.5%. Regarding the cylinder power, measures were adequate in 66% for the

the right eye and 62% for the left eye with the 2WIN .

Conclusions

The Plusoptix A12 and the 2WIN seem reliable for the evaluation of the cylinder power but not for the axis. These devices trend to underestimate the sphere. These devices can be used for screening of children refractive errors, but can not restitute cycloplegic retinoscopy measurements for prescription of optical corrections.

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