Reviewer's report

Title: Intraocular pressure in a cohort of healthy Eastern European schoolchildren: variations in method and corneal thickness

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Reviewer: Antonio Longo

Reviewer's report:

the manuscript reports the results of an interesting study about the measurement of CCT and corneal radius curvature and IOP (by three tonometers) in children aging 5-17 years.

in general it is an interesting study; manuscript requires some improvements

I suggest these minor essential changes:

1) abstract

background:
are reported the aim of the study, I suggest to change the text and report the background

methods
since in the study the IOP was measured by NCT, then by Icare, then by GAT, I suggest to report this order in the methods, in the results, and overall in the manuscript and in the figures

results:
line 3: “corneal thickness affect comparability of IOP values…”
(I suggest to change with: “A correlation was found between CCT and IOP values obtained with all three tonometers, while only the IOP values detected by Icare…”)

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2) introduction

pag 3, paragraph 4: instead of “The aim of this study was to measure the IOP…”
I suggest to change with:
“The aim of this study was to evaluate the IOP values detected by three tonometers in children and to investigate the effect of CCT and corneal radius on IOP values detected”
3) methods:
- technique of measurement should be better described:
  methods for obtaining a good alignment and repetition of measurement;
  instruction given to subjects; criteria for invalid measurement (that in children can
  be expected to be higher than in adults); was any subject excluded because of
  poor collaboration?

4) methods
- time between successive measurements should be specified, in order to
  exclude any possible effect of previous measurements on the last IOP
  assessment

5) results
(I suggest to present the results obtained with the 3 tonometers in the order that
was used for measurements: NCT, ICare, GAT)

6) page 5, paragraph 3. second sentence: “When confidence interval (95%) are
compared: …..”

( in methods section it was reported that statistical analysis was performed by
ANOVA and Tukey test; this should be mentioned in the results)

7) page 5, at the end of the paragraph 3: it is cited table 2; maybe it could be cited
  figure 3, showing mean values obtained with 3 tonometers.

8) page 5, paragraph 4: the sentence “ In order to investigate whether there is a
difference in correlations depending on the CCT” could be changed to “In order
to investigate the effect of CCT on IOP measurements…..”; this because in the
following sentences the correlations were not analyzed. (Correlations were
analyzed at pag 6, first sentence)

9) pag 6 paragraph 1, sentences 2 and 3: “CCT was statistically…..with the
GAT(p<0.025)” these sentence refer to radius of curvature or to CCT? If so, it
should be moved above.
discussion
- general consideration about IOP measurement in children could be moved in the introduction
- results should not be repeated in the discussion
- main result of the study was that different IOP values were obtained with 3 tonometers in children; this should be compared with similar articles (also in adults), and give possible explanations (by using CCT, radius of curvature, etc)

11)
- also limitations of the study, methods used in order to avoid errors of measurements, and to improve collaboration of children should be cited.

12)
I suggest english revision (in particular of punctuation)

13)
figures
in all figures (1, 2 and 3) the scale of values in x and y axis should be the same.

fig 1:
y axis: a) range 8-30 mmHg
b) range 6-24 mmHg,
c) range: 8-28 mmHg

fig 3 : iop (y axis)
a) 12,5-18 mmHg 
b) 12,5-17 mmHg 
c) 11-20 mmHg
also in fig 2

14)
figure 3
I suggest to report the data with the sequence used in the study
NCT, ICare, GAT, GAT (CCT)

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.