Reviewer's report

Title: Anterior Vault and Relative Lens Vault in Subjects with Angle Closure

Version: 2  Date: 7 June 2014

Reviewer: Florent Aptel

Reviewer's report:

Review: Manuscript BMC Ophthalmology, titled "Anterior vault and relative lens vault in subjects with angle closure."

The authors described two new anterior segment anatomic parameters (anterior vault and relative lens vault). They measured these parameters as well as some already described parameters such as the lens vault in a set of AS-OCT data retrospectively obtained from healthy subjects, and subjects with primary angle-closure and primary angle-closure glaucoma. They found a high intra- and inter-observer reproducibility of the anterior vault and relative lens vault measurements. They also found that the ability of the relative lens vault parameter to distinguish the primary angle-closure and primary angle-closure glaucoma eyes from healthy eyes is high and significantly higher that the ability of the lens vault parameter.

I agree with the rational of estimating the lens vault relative to the anterior chamber depth. The goal of this study is clear, the methodology has some strengths (large number of patient included, evaluation of intra- and inter-observer agreement of the parameters) and weaknesses (retrospective study, all subjects have had previous laser iridotomy, no separate analysis of PAC and PACG subjects).

I have a significant concern with the statistical analysis made to compare the two groups of patients (see my detailed comments below, n°3). I think that this should be clarified before considering the manuscript for publication.

Major revisions/comments:

1. Lines 63-67: any references to support these assertions? If not I would mention that, at this time, it is just a suggestion (as the main goal of the present study is to evaluate this hypothesis).

2. Line 119: luminance of the room, it is very hard to obtain 0 lux in a room, is it an estimation or was the luminance checked with a measurement device?

3. Results, Table 2. Which test was used to compare the data? I presume an unpaired t-test, as mentioned in the part Methods.

- I have used a t-test calculator with the mean, SD and number of subjects to compare the anterior vault of the 2 groups (3,11 ± 0,77 versus 3,28 ± 0,79 I
found a p value of 0.12 instead of 0.012 mentioned in the Table).
- Idem for the estimated AV (p value of 0.10 instead of 0.002)

4. Results: Were the diagnosis abilities of the two new parameters evaluated separately in PAC and PACG eyes?

5. Discussion: One limitation of the present study could be added. As all patients of the present study already have had laser iridotomy, it is not possible to compare the diagnosis ability of the novel parameters described here to those of parameters such as the AOD, TISA, ARA, etc. which could also have a high diagnosis ability

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests