Reviewer's report

Title: Frequency Doubling Technology, Optical Coherence Technology and Pattern Electroretinogram in Ocular Hypertension

Version: 1 Date: 13 March 2012

Reviewer: Christopher Bowd

Reviewer's report:

• Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

  1. None.

• Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

  1. In the Abstract, the authors should include the values for both the OH and healthy groups. The phrase “OCT showed a very significant thinning of RNFL in the superior quadrant (130 +/- 10.02, p < 0.011)” is not informative because the reader does not know the measurement from the other experimental group.

  2. In the Abstract, the criteria used to define OH and healthy should be included, not the final measurements from each group.

  3. Abstract methods, line 4 “perimetric”, not “parameteric”.

  4. Some of the references are not ideal. The authors should try to cite source papers, rather than review papers, when making particular claims.

  5. Some of the claims are controversial. For instance, it's not necessarily true that RNFL alterations precede optic disc and visual field defects. This observation might very well be due to the techniques used for testing. Similarly, there are studies that show that SWAP is not more sensitive to SAP.

  6. Need to state how the optic disc/RNFL were assessed. Exam? Photographs? Also, the authors need to specifically define a normal visual field.

  7. The authors should not necessarily compare their results for the flash-PERG with studies using the steady-state PERG. If they wish to do this, they should point out the differences.

  8. PERG amplitude (at least steady-state PERG amplitude) is notoriously affected by IOP. Therefore, the comparison between eyes with IOP # 21 mmHg and those with normal IOP is not really fair, as the difference likely is not due to early disease. I’ll leave this issue up to the Editors to address.

• Major Compulsory Revisions (which the author must respond to before a
decision on publication can be reached)

1. The authors use statistics to compare FDT, OCT and PERG measurements between the OH and healthy groups, but they stop at that. Knowing the measurements are different between these groups does not say anything about the relative classification (i.e., OH versus healthy) ability among instruments. The authors need to compare ROC curve areas, perhaps using the method of DeLong and colleagues (DeLong ER, DeLong DM, Clarke-Pearson DL. Comparing the areas under two or more correlated receiver operating characteristic curves: a nonparametric approach. Biometrics. 1988;44:837-45). That way, they can say something like “OCT measured inferior quadrant RNFL thickness and FDT PSD discriminated between OH and healthy eyes better than PERG amplitude (p=0.0x and 0.0x, respectively)”. As it stands, we do not know if that’s the case. Also it would be good to know which of the ROC curve areas differed significantly from chance (i.e., were significantly greater than 0.50). This can be accomplished by showing that the 95% confidence intervals of the ROC curve areas (which should be included in Table 3) do not include 0.50.

The authors also should compare sensitivities at fixed specificities (values obtained from the values making up the ROC curves) among instruments. It’s possible to do this using a McNemar’s test (and possibly other techniques). This comparison is not as important and probably can be considered discretionary).

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

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests