Reviewer’s report

Title: Multifocal VEP and OCT findings in patients with primary open angle glaucoma: A cross-sectional study

Version: 2 Date: 3 June 2012

Reviewer: Ted Maddess

Reviewer’s report:

Major Required changes: points 15, 16, 18 below

General comments

Abstract

1. In several places reduce the number of significant figure reported from 4 to 3, as in “34.17±17.62” to “34.2±17.6” unless you are claiming to have measured these quantities to 1 part in 10,000. Similarly in Tables 2, 3, 4 etc.

2. Replace “This means that the RNFL thickness was lower than normal in all the peripapillary areas. Nevertheless the decrease was higher but not statistically significant in the inferior

3. and superior area.”

4. With something like “There was a non-significant trend towards thinner superior and inferior peripapillary RNFL”, at least I thought that was what you meant but Table 4 says otherwise, please clarify.

Introduction

5. Change “objectively detect the optic disc” to “measure the optic disc” or “quantify the optic disc”

Methods

6. When you say the patient’s VF defects were repeatable, on how many repeats?-scans), what perimeter and what test? How was the CD ratio determined? What was the BCVA cut-off? (ah ha I see you have it in the Results, move it here for clarity).

7. The company is Carl Zeiss Meditec in Dublin CA and the model is the Cirrus 3000 HD-OCT

8. on page 4 replace the second “emitting” with something like “producing”

9. replace the “.” In “1.024” with a “,” and all other instances if any

10. you could just say “on a unit circle” the first time and remove them for the other arcs. Why did you give the data on 512 a-scans/b when you didn’t do volume scans but peripapillary scans? How did you align the 3 repeated scans?

11. When describing angles use the degree symbol not the numeral 0. Also why not be consistent and use the symbol for the arcs instead of the word degree? Also why not just say that “the borders of the rings fell at 0.5, 3.0, 7.0. 12.0, 18.0
and 25 deg retinal eccentricity”? “deg being the ISI unit.

12. Change “Subjects were viewed with” to “Subjects wore”.

13. What was the colour of the fixation cross? Also please give the colour temperature of the white of the display.

14. Units such as cm should be separated by a space from the numerical values, i.e. 2 cm not 2cm. Correct everywhere.

Results

15. The results in Table 2 are fine but we need to know if they are clinically useful so some attempt at ROC analysis is needed, providing say the sensitivity at some reasonable specificity (10%?). After all you are claiming to look at the conjoint clinical value of doing both tests. Likewise for the RNFL results of table 4.

16. You should use something like Garway-Heath’s structure function map to and rather than pooling your 3 rings, pool mfVEP regions that correspond to the sectors of the optic disc. Then you could compare your 4 mfVEP measures with your 4 optic disc measures, and do ROCs for both. You could then do a combined analysis also to see if measuring both things increases sensitivity and specificity or not. If both instruments measure highly correlated things there will be no improvement. That seems unlikely but if you really want to quantify the value of doing both tests you need to do something like this.

17. Finally you might not want to arbitrarily throw away your outer ring data, try the analysis with and without the data in a let the data tell you what is best.

18. Please also tell us what proportion of patients showed defects within the central 12 deg, i.e. the visual field locations where your mfPOP data comes from. Admittedly a coarse 24-2 test doesn’t give you much data to go on but you should report this, as the denser mfVEP sampling may be an asset.

19. It would be nice if in a few cases that showed no defect in the central 12 to get those patients back and do a 10-2 test. That would enhance the value of your paper for relatively little effort (or generate another paper?)

Discussion

20. Please give the citations nearer in the text for “Klistorner et al and Rodarte et al”, and its “et al.” al. being and abbreviation.

Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

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

Declaration of competing interests:

I receive royalties from Carl Zeiss for the FDT/Matrix perimeters. I have also
received support from Seeing Machines to develop an alternative form of multifocal analysis of the visual fields that uses pupillary responses rather than evoked potentials. We have also used the hardware platform to perform mfVEPs. I don’t believe that acceptance or rejection of this paper would have any impact on my royalties or the outcome of our work on the alternative method. Therefore I believe there is no conflict.