Reviewer's report

Title: Changes of Intraocular Pressure after Pharmacologic Pupil dilation

Version: 1 Date: 21 June 2012

Reviewer: Carol Toris

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Major Compulsory Revisions

1. In the abstract and in the conclusion paragraph of the Discussion section, it is stated that the IOP increase could be caused by a reduction in outflow facility. To make this conclusion, outflow facility should have been measured. Are tonography data available? If not, then reword the conclusion.

2. Other than IOP, there are no diurnal baseline measurements (without dilation) of the other parameters. 24 hour fluctuations in several of these parameters (CCT and ACD for example) do exist. Therefore it is difficult to separate the 24 hour fluctuations from the changes due to dilation. Please provide a discussion of how the authors are confident that the post dilation differences are not confounded by 24 hour fluctuations.

3. As this is a study of pupil dilation, the pupil size should be reported. Is there any correlation between size of pupil and IOP effect? Does pupil size change with repeated application of Mydrin?

Minor Essential Revisions

4. Line 42: add “pupil” before “dilation”.

5. Line 83. Separating baseline from experimental IOPs by up to 3 months may introduce variability that may not exist otherwise. There are seasonal changes in IOP. This should be discussed briefly in the Discussion section.

6. Line 140. Please clarify what is meant by “4 to 6 hours after dilation”. This could be interpreted as dilation was maintained for 4 to 6 hours after application of the Mydrin or it could mean 4 to 6 hours after dilation was no longer present.

7. Line 142. Please clarify the meaning of “outflow rates”. Does this mean the rate of flow through the trabecular meshwork (ul/min) or the trabecular outflow facility (ul/min/mmHg)?

8. Line 147. Aqueous inflow cannot be different from aqueous outflow. What goes in must come out or the eye would blow up or shrink to a raisin. This sentence should be reworded.

9. Figure 1. Were flare readings collected in the volunteers on the day without dilation? Indicate with an arrow the time that the Mydrin was given. How much of this flare reduction could be attributed to normal diurnal fluctuations?

10. Figure 2 raises questions similar to above. Were angle width measurements collected in the volunteers on the day without dilation? Indicate with an arrow the
time that the Mydrin was given. How much, if any, of the width increase could be attributed to normal diurnal fluctuations?

Discretionary Revisions
11. Figure 3. This figure can be deleted and the text of the legend reported in the Results section.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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' below.