Reviewer's report

Title: Randomised controlled single-blind study of conventional versus depot mydriatic drug delivery prior to cataract surgery [ISRCTN 78047760]

Version: Date: 19 June 2006

Reviewer: John Siderov

Reviewer's report:

General

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

Comments to authors:

Introduction

This paper describes a small study investigating the efficacy of multiple drops of mydriatic agents compared to depot drug administration. The question posed by the authors is not new although the study claims to be more rigorous than previous.

Methods and results

1. The data (Figure 2) seem to suggest that the mean pupil diameter for the DROPS group is larger than the mean pupil diameter for the WICK group. However, the authors do not provide means and standard deviations. In fact, I do not understand why the authors have used a non-parametric statistic. Data such as these are more appropriately analysed using parametric statistics (reference 6 in the authorâ€™s list). The statistical analysis should be repeated using a parametric test (the Students t-test would be appropriate) which is a more powerful statistic than the Mann Whitney test.

2. The sample size seems quite large for this type of study (see reference 6). The authors state that a â€œmoderate effect sizeâ€™ was used to calculate the sample size required. The authors should state the effect size they used in their calculations.

3. The authors should indicate more precisely the time interval from the start of drop/depot insertion to when the measurement of pupil diameter was taken.

Discussion

4. The authors conclude that their study shows that a depot method of drug delivery can provide adequate pupil dilatation. What they have actually shown (assuming that the re-analysis of their results is consistent) is that the depot delivery is no different to the conventional approach. Whether either is adequate for cataract surgery has not been addressed. The authors should re-write this section to better reflect the results.

5. The authorâ€™s state that Siderov et al (reference 6) showed that prior instillation of proparacaine enhanced tropicamide induced dilatation. However, this result was only found for subjects with light coloured irides. In that paper, we argued against mechanisms such as disruption of the corneal epithelium and reduced tearing. The authors should re-read the reference and modify their discussion to better reflect what is in the literature. The authors may also be interested in the paper by Ghose et al (IOVS June 2001, Vol 41(7) pg1581-)

6. The authorâ€™s dismissal of their reference 7 is too cursory. Given the relevance of this study to their results they should provide more detail of what was done in the introduction. They should also provide more details on how their results differ from those of reference 7 in their discussion.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
7. Figure 1 should be omitted. It does not add to the text.

Discretionary Revisions (which the author can choose to ignore)

Additional comment:

The authors conclude by providing a brief cost analysis of using a depot system for drug administration and claim a £3 saving per session (of 5 patients). It is difficult to comment on such figures without going into details about the individual costs of materials etc. However, it did raise a question in my mind. In their methods section, the authors state that the DROPS group received multiple drops according to local standard practice (4 lots of multiple drops). I think it would have been of more interest to evaluate whether multiple drops are required in the first place. Recent work in our laboratory has shown that multiple drops of tropicamide do not enhance pupillary dilatation (Siderov and Nurse, Optometry and Vision Science, 2005, 82:11 pg 955-).

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:
I declare that I have no competing interests