Author's response to reviews

Title: Pre-operative intraocular pressure does not influence outcome of trabeculectomy surgery: a retrospective cohort study

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Author's response to reviews: see over
Referee 1

Minor essential revisions

1 IOP cut-offs: POAG is conventionally divided into high pressure glaucoma (maximum IOP above 21mmHg) and normal tension glaucoma (maximum IOP less than or equal to 21mmHg). The statements at lines 45, 104 (‘Thirty eyes included in the study had an intraocular pressure (IOP) consistently below 21mmHg at all clinic visits since diagnosis.’) and 195 should be clarified to reflect this, and the numbers amended if the wrong cut off has been used.

Similarly 73-75, in the definition of hypotony, failure is defined as IOP less than or equal to 5mmHg, and success is defined as IOP greater than or equal to 5mmHg.

The statements at lines 45, 104 and 195 have been amended to ‘less than or equal to 21mmHg’ to clarify that the correct cut-off has been used. Lines 73-75 have been changed to reflect that in the definition of hypotony, failure is defined as IOP less than or equal to 5mmHg, and success defined as IOP greater than 5mmHg.

2 The number of trabeculectomies (80) included seems quite low for an eleven year period at a unit of this size, and it is important to know the number of exclusions, and the reasons for these.

A sentence has been added at line 98: "Despite repeated attempts, the patient records were unavailable to access for the remaining trabeculectomy cases performed during the study period." As a result, it is difficult to assess how many of these would have matched the inclusion criteria for this study and therefore an indication of numbers excluded was felt to be misleading.

Discretionary Revisions

3 ‘The median time of follow-up was 36 months’ (97). This is reassuringly longer than the minimum required by the WGA criteria (two consecutive follow-up visits after 3 months) but it would be useful to know the range.

The number of patients at each follow-up time-point is detailed in Table 2.

4 Mitomicin was used in 76% of patients. This is known to improve IOP results in trabeculectomy, and it would be useful to know if its use was associated (positively or negatively) with preoperative IOP.

Fisher’s Exact test was used to assess whether use of mitomycin C was associated with failure of trabeculectomy surgery within the period of follow-up. The results have been included in line 141: “Failure of trabeculectomy surgery within the period of follow-up showed no association with use of mitomycin C (p=0.369, Fisher’s exact test).”
5 Currently all IOP measurements are qualified by pachymetry; this would add further refinement to this study, but it is possible that this was not a routine measurement at the start of the study.

The sentence, “Pachymetry was not a routine measurement at the start of the study period and the IOP was not adjusted for central corneal thickness.” has been included in the ‘Methods’ section at line 73.

6 The definition of success. The WGA guidelines are mainly useful for comparing treatments of similar groups. However, as the results of this study imply (175), it is possible that neither % reduction in IOP nor absolute reduction are what really matters, rather, the final IOP is what determines the functional outcome- the authors should address this in the discussion of IOP (214-218).

The study isn’t large enough or long enough to provide definitive data on long-term functional outcomes. The visual field data do suggest continuing deterioration in Mean Deviation after surgery, even though this was not statistically significant.

Lines 220-221 have been amended to include a discussion point that ‘A better determinant of functional outcome may indeed be final IOP achieved post-operatively.’

Referee 2

I do not have any major compulsory / essential revisions to ask for. My comments are essentially discretionary.

Comments are in order of appearance in the manuscript, not importance.

L52, This sentence could be better written, and the Oxford comma dispensed with.

This sentence has been changed to, “This study was retrospective and adhered to the Declaration of Helsinki.”

L66, the authors may wish to comment on the fact that there are various definitions in the WGA document, why did they choose this one?

The decision to use this definition was based upon its use in previous literature, particularly in the TVT study, which has now been referenced in line 67.

L87, I imagine the authors used binary LR because for the forest plot approach this is simpler, however, a Cox type approach is often preferred. Was this not done because of the long FU intervals (and therefore big steps) after surgery? I suggest you state that 3 yrs was used in the methods.

Line 93 has been amended, to highlight that a 3-year follow-up was used.
L95 Numbers are surprisingly small, perhaps a comment on why would be helpful.

See above

L107ish I would suggest putting median IOP in here.

The mean pre-operative and post-operative IOPs are detailed in Table 2.

L127, Suggest 33/53 rather than 33.

This has been changed to “33 of 53”.

L130, the comment 'surgical grounds' does not really make sense. Other grounds are also surgical.

The phrase ‘on surgical grounds’ has been removed.

L148 I would make it explicit that you found an association between a higher prep IOP and cataract.

Line 148 has been changed to, “There was a statistically significant odds ratio for cataract formation of 1.09 per mmHg pre-operative IOP (95% C.I. 1.00-1.18, p=0.04 Wald X 2 test), and thus increased risk of cataract with a higher pre-operative baseline IOP.”

L170 The comment here is reasonable (ish), but 3 years is a rather short time and numbers are small so I suggest you remove it.

The comment at line 170 has been removed.

L184 The TVT data is in a very different group of patients with higher IOPs. I am not sure it is relevant. I also think you need to be more explicit about the low power of this study to show a small difference in final IOP.

At line 181, the phrase, “suggesting the sample, although limited by its power, is sufficient to draw meaningful conclusions” has been added.

Legends, on forest plots.

I suggest you put a explanation such as 'association with high IOP' much as Cochrane reviews use ‘favours A’ or ‘favours placebo’.

Legends have been added to both Forest plots, indicating ‘Greater association with high pre-operative IOP’.