The ROYAL COLLEGE of OPHTHALMOLOGISTS

CORRESPONDENCE

Response to 'Comment on "Surgical and laser interventions for pseudoexfoliation glaucoma systematic review of randomized controlled trials"'

Eye (2022) 36:478–479; https://doi.org/10.1038/s41433-021-01758-w

TO THE EDITOR:

We appreciate the comments and interest of Dr. Guanghui Yan et al. on our systematic review [1] but we don't agree with their criticisms. Dr. Yan et al. suggested that our methodology regarding assessment of the risk of bias, selection of databases, and meta-analysis was flawed.

We would like to stress that the conclusions of our study, which demonstrate the lack of evidence on surgical interventions for pseudoexfoliative glaucoma, are valid.

These are our responses to the specific issues raised by Dr. Yan et al. in the letter:

Regarding the assessment of the risks of bias in the study publications, we found important differences in criteria and we don't think Dr. Yan is correct. In particular:

(1) Kent study [2] cannot be qualified as low risk for selection bias because they did not specify the random sequence generation (neither in the study nor in the protocol recorded) and the groups have a very disparate number among them (45 vs. 31) which suggests possible selection biases between the two groups.

(2) Dr. Yan judged the risk of detection bias as high for all studies when four of them (Georgopoulos [3], Jacobi [4], Jacobi [5] and Bagli [6]) describe in their methods that they have used a masked examiner to perform the IOP measurements or an independent observer who was unaware of the previous IOPs, so we interpret that the necessary measures have been taken to corroborate adequate masking of the evaluation of the results.

(3) We think there should be some concern about the risk of reporting bias of the studies when they do not have a previously published protocol, so it is not possible to assess whether the data were analyzed according to a pre-specified plan that was finalized before unblinded outcome data were available for analysis. At a minimum, trials should be evaluated as uncertain but not as low risk.

(4) The assessment of attrition bias by Dr. Yan is inappropriate. They rate as low risk of bias those studies that have not reported data on losses to follow-up and that present incomplete data for IOP and number of medications in follow-up or inconsistent data available at the end of follow-up.

Regarding the databases selected in our study we chose the same databases used in Cochrane reviews.

Dr. Yan claims that we missed two RCT (Takmaz et al. [7], and Li et al. [8]). These articles were published in two journals with poor scientific impact (impact factor of 0.1 and 0.3).

The study by Takmaz et al. [7] is not an RCT as no method of randomisation was used. Takmaz et al. described the allocation process as follows: "The randomization was performed as follows; the first patients with POAG and PXG diagnosis underwent P–T and the second patients underwent P–DS operations. The operations were performed in this way until there were 20 patients in each group." In addition, this study by Takmaz et al. did not analyse separately results for the small subgroup of patients with pseudoexfoliative glaucoma ($n = 15$) as required in our inclusion criteria.

The study by Li et al. [8] reported comparison of two different incisions of the same intervention and did not report the results of the subgroup of PXF participants. Thus, the study by Li et al. did not fulfill our inclusion criteria.

We do not understand the basis for the criticisms of the way of estimating the summary effect in our meta-analysis. Firstly, it must be emphasized that we assumed a random-effects model. Although we evidently acknowledge the difficulty of estimating the degree of heterogeneity across studies in a setting with only two studies, it is unfounded to claim that the use of Dersimonian–Laird method would have been adequate. Perhaps, we would have expected to read about the use of the Hartung–Knapp–Sidik–Jonkman method (Hartung and Knapp [9]; Sidij and Jonkman [10]) as an alternative (IntHout et al. [11]), although in contexts like ours it tends to produce too wide confidence intervals (see, e.g., Friede et al. [12]). Instead, we opted for applying a Bayesian perspective. The references given in our paper (Friede et al. [12]; Röver [13]) suggest that the technique used deals adequately with situations similar to ours.

In summary, the methods of our systematic review and meta-analysis were correct. The results of our systematic review should not be questioned or give rise to misinterpretations. The criticisms by Dr Yan et al. are unfounded.

Sara Pose-Bazarra[1]✉, María Jesús López-Valladares[2], Ignacio López-de-Ullibarri[3] and Augusto Azuara-Blanco[4]
[1]*Ophthalmology Department, University Hospital Complex of Ferrol, Ferrol, Spain.* [2]*Ophthalmology Department, University Hospital Complex of Santiago de Compostela, Santiago de Compostela, Spain.* [3]*Department of Mathematics, University of A Coruña, A Coruña, Spain.* [4]*Centre for Public Health, Queen's University, Belfast, UK.* ✉*email: saraposeb@hotmail.com*

REFERENCES

1. Pose-Bazarra S, López-Valladares MJ, López-de-Ullibarri I, Azuara-Blanco A. Surgical and laser interventions for pseudoexfoliation glaucoma systematic review of randomized controlled trials. Eye. 2021;35:1551–61.

Received: 22 July 2021 Revised: 25 July 2021 Accepted: 17 August 2021
Published online: 30 September 2021

2. Kent SS, Hutnik CM, Birt CM, Damji KF, Harasymowycz P, Si F, et al. A randomized clinical trial of selective laser trabeculoplasty versus argon laser trabeculoplasty in patients with pseudoexfoliation. J Glaucoma. 2015;24:344–7.
3. Georgopoulos GT, Chalkiadakis J, Livir-Rallatos G, Theodossiadis PG, Theodossiadis GP. Combined clear cornea phacoemulsification and trabecular aspiration in the treatment of pseudoexfoliative glaucoma associated with cataract. Graefe's Arch Clin Exp Ophthalmol. 2000;238:816–21.
4. Jacobi PC, Dietlein TS, Krieglstein GK. Comparative study of trabecular aspiration vs trabeculectomy in glaucoma triple procedure to treat pseudoexfoliation glaucoma. Arch Ophthalmol. 1999;117:1311–8.
5. Jacobi PC, Dietlein TS, Krieglstein GK. The risk profile of trabecular aspiration versus trabeculectomy in glaucoma triple procedure. Graefe's Arch Clin Exp Ophthalmol. 2000;238:545–51.
6. Bagli E, Gartzios C, Asproudis I, Kitsos G. Comparison of one-site versus two-site phacotrabeculectomy without the use of antimetabolites intraoperatively in patients with pseudoexfoliation glaucoma and primary open-angle glaucoma. Clin Ophthalmol. 2009;3:297–305.
7. Takmaz T, Akmese HA, Onursever N. Comparison of combined phacoemulsification -non -penetrating deep sclerectomy and phacoemulsification-trabeculectomy. Int Eye Sci. 2015;15:1851–6.
8. Li XG. Clinical efficacy of different incision phacoemulsification and trabeculectomy for cataract and glaucoma. Chin J Pract Ophthalmol. 2017;35:411–4.
9. Hartung J, Knapp G. On tests of the overall treatment effect in meta-analysis with normally distributed responses. Stat Med. 2001;20:1771.
10. Sidik K, Jonkman JN. Robust variance estimation for random-effects meta-analysis. Comput Stat Data Anal. 2006;50:3681.
11. IntHout J, Ioannidis J, Borm G. The Hartung-Knapp-Sidik-Jonkman method for random effects meta-analysis is straightforward and considerably outperforms the standard DerSimonian-Laird method. BMC Med Res Methodol. 2014;14:25.
12. Friede T, Röver C, Wandel S, Neuenschwander B. Meta-analysis of two studies in the presence of heterogeneity with applications in rare diseases. Biometrical J. 2017;59:658.
13. Röver C. "Bayesian random-effects meta-analysis using the bayesmeta R package. J Stat Softw. 2020;93:1.

AUTHOR CONTRIBUTIONS

SPB, MJLV, AAB conceived and designed the work. SPB, MJLV, AAB collected and analyzed the data. ILU performed the statistical analysis. SPB, MJLV, A.A.B, ILU interpreted the results. SPB wrote the article and MJLV, AAB critically reviewed it and prepared the final approval of the version to be published.

COMPETING INTERESTS

The authors declare no competing interests.

ADDITIONAL INFORMATION

Correspondence and requests for materials should be addressed to S.P-B.