Reviewer's report

Title: Viscoat versus Visthesia during phacoemulsification cataract surgery: corneal and foveal changes.

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Reviewer: Miltiadis Tsilimbaris

Reviewer's report:

In this paper Moschos et. al compare two viscosurgical devices (OVD) measuring their impact on central corneal thickness, endothelial cell count, macula thickness and visual acuity after phacoemulsification cataract surgery. They compare a dispersive OVD (Viscoat) with a cohesive one combined with lidocaine (Visthesia). They conclude that the dispersive OVD leads to less corneal thickness and less endothelial cells loss, while visual acuity improves the same with both devices. They also found that macular thickness increases in the group of Visthesia.

The work is well contacted and the information provided is useful. However some things need to be improved before publication:

Major Compulsory Revisions

1. Although the two devices have obvious differences based on the fact that one is cohesive and the other dispersive, it seems that their main difference is related to the presence of lidocaine in Visthesia. Authors need to address better this fact in the background section and to add some more information concerning advantages, disadvantages and effects of intracameral anesthetics.

2. The comparison would be more clear if they had chosen to compare two OVDs with the same physicochemical and rheological properties, one with and the other without lidocaine. This should be reported as one of the limitation of this study in the results section.

3. In Methods the authors report that one patient developed cystoid macular edema, meaning a considerably high macular thickness. Why did they choose to exclude him?

4. Also in Methods it is stated that "after the completion of surgery, patients were asked to rate their pain on a visual analog scale (VAS, range: 0-10)". Some more details concerning the pain measurement methodology and the tool utilized need to be added.

5. Some more discussion concerning the possible pathophysiological mechanism of macular thickening need to be added in Discussion together with some literature review (e.g. Johansson M, Lundberg B, Behndig A. Optical coherence tomography evaluation of macular edema after phacoemulsification surgery with intracameral mydriatics. J Cataract Refract Surg. 2007 Aug;33(8):1436-41).
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests