Author’s response to reviews

Title: Correlation and predictability of ocular aberrations and the visual outcome after quadrifocal intraocular lens implantation: a retrospective longitudinal study

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Author’s response to reviews:

Dear Editor Joann J. Kang:

We are very glad to hear from BMC Ophthalmology that a revision of our manuscript is warranted. Since the multiple ROC curves may lead to confusion, we deleted figure 1 and described the content in the tables and manuscript (actually, we already did it in the original version). We revised the manuscript according to the suggestions of the reviewers, and provided a list of the responses we made for all the comments which are located in the following sections. In addition, a track-change version was provided to highlight the changes we made (except the English editing part) and the revised manuscript was conformed to the journal style. We hope that the responses can fulfill the requests and our manuscript will soon be accepted and published by BMC Ophthalmology.

Best wishes,

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Hung-Yu Lin, MD
Response to reviewers:

Paulo Schor (Reviewer 1):
Congratulations for the work. It is indeed very important to study the visual behavior under new technology options. Authors already pointed the study limitations such as control lack and retrospective study, but I see the major benefit of such paper as a quasi-quantitative case series presentation, where the reader might draw his/her own conclusions.

For that to be true, an individual decentration of the bag and the lens shall be presented and correlated with BCVA. In such individual plots it might be possible to highlight the outliers of a smooth (even in this relatively small sample) trend.

Statistical analysis in such scenario may overestimate (or underestimate) the clinical relevance and specially, the clinician reading of you results.

Response: Thanks for the suggestion. Since no patient was examined by the anterior segment OCT during the follow up period, whether IOL was decentrated or not was depend on the medical record wrote by our physician. We retrieved those patients with IOL decentration (only 5 patients, thus statistical analysis is impractical) and described their characters which are now available at line 192-195, 266-271, 349-359 and Table 6.

Enrico Martini (Reviewer 2):
In the text are reported a number of complaints by the patients but no correlation of these symptoms was assessed with pre- or post-operative aberrometry results.

The correlation between preoperative angle alpha and SA and post-op visual acuity was predictable and the correlation between post-op aberrations and visual acuity seems to have no relation with patient subjective satisfaction and so doesn't seem to be a very useful information. Even if there is a quite good overall refractive results no comment is given about the refractive results, aberrations and patient satisfaction.

The ROC curves are poorly understandable so the only useful information is the negative effect of a large angle alpha preoperatively probably due to poor contraption of the IOL on the visual axis and this was really predictable.

Response: The absence of analysis between subjective symptoms and aberrometry results is because after the follow up period of six months, only 7 patients still had complaints. In this situation, any statistical analysis will lead to significant bias due to relatively small sample size. Still, we described and discussed that patients with persistent visual complaints were associated with poor distance and near vision which is now available at line 279-281, 342-345 and 354-359. Also, no patient was fully
unsatisfied for the visual outcome and more than 80 percent of patients were fully satisfied about the visual outcome, which makes statistical analysis impractical due to discordance of case number in each category. Because the comments of refractive results and aberrations were already presented in the discussion section 2 and 3, we added the information of patient satisfaction at line 280-283 and 345-349. Last but not least, although some conceptions have already been speculated, it is important and mandatory to verify those conceptions with scientific analysis, not to remain them just as hypothesis. The current study demonstrates those ocular aberrations that influence postoperative visual acuity for the quadrifocal intraocular lens implantation and provide a predictive point of good visual outcome. We think this research can make contribution of clinical practice to some extends.

Cheng Pei (Reviewer 3):

1. Needs some language corrections before being published
Response: Actually, we sent our manuscript to “American Journal Expert” for English editing before submission. Still, we sent our manuscript to another native-speaker for further correction, and mild modification on English was made.

2. Snellen chart was used to test CDVA, why don't you use logarithmic visual acuity chart to get the logMAR directly.
Response: This is because the logarithmic visual acuity chart is not available at our institution. We added this description at line 172-173.

3. NCV A was tested just at six months after surgery, why did you choose this point to follow up, or how did you identify the follow-up point.
Response: The time of NCV A examination arrangement is according to our experience (in preceding multifocal IOL implantation) that the visual acuity has minimal possibility to change and the short-term visual complication like transient blurred near vision or halo will improve six months postoperatively. We added this information at line 177-181.