Author’s response to reviews

Title: LONG-TERM VISUAL OUTCOMES AND REHABILITATION IN USHER SYNDROME TYPE II AFTER RETINAL IMPLANT ARGUS II.

Authors:
Maria Iglesias (mariaiglesiasalvarez@gmail.com)
Maria Iglesias (mariaiglesiasalvarez@gmail.com)

Version: 3 Date: 21 May 2018

Author’s response to reviews:

RESPONSE TO THE COMMENTS

BOPH-D-17-00591R1

LONG-TERM VISUAL OUTCOMES AND REHABILITATION IN USHER SYNDROME TYPE II AFTER RETINAL IMPLANT ARGUS II.

Jeroni Nadal; Maria Iglesias

BMC Ophthalmology

We would like to thank the reviewers again for their advices and support.

All changes to the manuscript are indicated in this text by highlighting a response right after the questions of the reviewers (in blue), and changed directly in the manuscript.

We believe that with these corrections the quality of the article improves.
Kind regards,

Maria Iglesias

Jeroni Nadal

REVIEWER REPORTS:

Un Chul Park (Reviewer 1): The authors have addressed most of my points.

However, in Figure 3 which was added in this revision in response to the comment by reviewer 2, electrode array is not in close contact with the inner retinal surface except at both edges of array raising suspicion that it couldn't work properly at this status. The OCT images of patients who received Argus II prosthesis show better contact with inner retina in other case reports, and I wonder postoperative calibration of each electrode's threshold was performed to overcome this problem as Rizzo et al reported (Am J Ophthalmol 2014;157:1282-90). I think reviewer 2 would give more rational assessment for this issue.

We agree with this comment.

Argus II information is adjusted externally so that the electrical stimulation of each electrode can be varied according to six different levels. This is important because correct functioning depends on the electrode-retina implant distance. It is very difficult to position the implant so that all the electrodes are at the same distance from the retina surface. As a result, the electro-retinal distance varies and it is necessary to independently adjust the contrast and resolution of each electrode to ensure uniform stimulation.

As it is mention by the Reviewer 2, implant electrodes must be as close as possible to the retina cells to enable the pacing thresholds of the electrodes to function correctly. When they are in a
moist environment, the electrodes generate a triangular expansion stimulus. However, if the electrode retina cell distance is superior to 800 microns, the stimuli may overlap and not be correctly identified by the patient. For a consistently sharp and accurate image, the distance between all electrodes and the retina should ideally be exactly the same.

Since the goal of our article is not to discuss accurate contact, we presented the previous figure 3 just to illustrate the implant OCT.

However, as requested, we will add instead another OCT slide of our patient, in which it can be seen the macula area in detail. It confirms a more accurate contact between the array and the inner retina, being the highest electrode-retina distance (439 and 487 microns), supporting therefore the idea that the implant works properly at this status.

Modifications have been included in the manuscript (Figure Legend 3) and new Figure 3.

Minor point:

I have found one grammatical error.

- page 4, line 9-11, his successfully rehabilitation --> his successful rehabilitation

Thank you for this minor point. A modification has been included in the manuscript

Young Hee Yoon (Reviewer 2): Questions were well addressed.