Reviewer’s report

Title: Influence of electromagnetic radiation emitted by daily-use electronic devices on the Eyemate® system in-vitro: a feasibility study

Version: 0 Date: 13 May 2020

Reviewer: Christoph Faschinger

Reviewer's report:

A quite new way to check the intraocular pressure (IOP) (pseudo-) continuously is via a device implanted in the posterior chamber during cataract surgery. The device is called eyemate and consists of several capacitive sensors and an antenna. The pulse to measure and the reception of the IOP-values is arranged via electromagnetic radiation from a second hand-held device, that has to be hold relatively close to the eye.

There might be a probable interference of this electromagnetic transfer with those radiations of everyday used communication tools (telephones, smart-phones, ect). To check this probable interference the authors describe their experiments and results in an experimental setting. An eyemate device was brought into a water filled plastic bag to simulate an eye and after a steady state period the communication tools were activated to look for changes in the „IOP“-profile. Non of the tested devices showed any changes of the profile of the eyemate. Therefore the patients who will get an eyemate implanted may be informed that they can use their communications tools as usual and that there will be no influence to the IOP values.

This manuscript is a valuable contribution to the application of the eyemate for (pseudo-) continuous IOP measurements. The content is new, the methods fitting, the graphs informative. An interesting manuscript. There is no comparable and approved device with capacitive sensors on the market, so there is no control group possible.

Some remarks:

Page 2/lines 21, 24, 26: measuring IOP is not only a clinical setting, it is an office setting as well. .....throughout the day….maybe better: throughout a 24-hour period.
Page 4/line 2: studying the probable influence…
Page 10/line 10:…both sensors share a similar method of telemetric communication …, but use totally different principles of measurements: strain gauges versus capacitive sensors.
Page 11: hPas could be explained as HectoPascal….absolute pressure

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes
Does the work include the necessary controls?  
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?  
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?  
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English  
Please indicate the quality of language in the manuscript:

Acceptable

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