Reviewer’s report

Title: Impact of transparent tray-based application of bioactive glasses desensitizer on the permeability of enamel and dentin to hydrogen peroxide: an in vitro study

Version: 0 Date: 04 Feb 2019

Reviewer: Alexander Franz

Reviewer's report:

Review of OHEA-D-18-00648 entitled > by Qian Ma et al.

General comments: In this manuscript the authors present a study evaluating the impact of the application of a bioactive glass desensitizer using a transparent tray in comparison to direct application of desensitizer. Although the study design is interesting, there are methodological differences between subgroups that are incomprehensible and need to be clarified. The experimental setup and the amount of results are a bit poor for a publication in BMC Oral Health. At the moment this study is more suitable as a short communication. It might help to complement other experiments, such as observing whether the effects shown in table 1 are maintained over a longer period of time. Is this effect only a snapshot or does it last for a longer period of time? This would be important for the clinical application. For example after longer storage of teeth following application of bioactive glass desensitizers in artificial saliva and/or thermocycling of teeth and repetition of the experiments and measurements after different time intervals. It would be sufficient to limit further time-dependent experiments to the subgroups B, C and D.

Specific comments: Materials and methods

Drying of teeth: After pre-treatment, teeth of all subgroups were dried before exposure to distilled water or 30% H2O2 solution. Do the authors mean only a very short drying before the next working step, what would be permissible, or a storage and thus drying of the teeth for a longer period of time? Was the duration the same for all groups? It is important for in vitro experiments to keep teeth constantly moist, just like in the in vivo situation. Please clarify.

Immersion of teeth in artificial saliva: In groups C, E, D and F teeth were immersed in artificial saliva for 24h before removal of root and pulp tissue. Why did the authors omit storage in artificial saliva for groups A and B? In a standardized test procedure, it is important that all steps are performed in the same way. This might have influenced the uptake of H2O2 in group B. Please clarify.

Statistical methods: The chosen post-hoc test for ANOVA is missing.

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.

Yes

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?
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