Reviewer’s report

Title: Effect of exposure parameters of cone beam computed tomography on metal artifact reduction around the dental implants in various bone densities

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Reviewer: Jin Liu

Reviewer's report:

Overall: This manuscript is a metal dental implants imaging study which investigated image quality and artifacts of CBCT using different FOV and different mA. This is an interesting study which investigated relationship between image quality, FOV and electrical current. Studies were run with different bone densities and evaluated the amount of artifacts. And the goal is to provide advices to obtain images with lower artifacts. Authors found that a smaller FOV can be used to decrease metal artifacts. The manuscript is well-written and the methods are clearly conveyed. Therefore, the reviewer would recommend some minor revisions before the manuscript is fully considered for the publication. Here are some suggestions.

1. In P. 4, the exposure setting is not clear. What is rotation time

2. Suggest adding the more experiments with more different FOV and mA in main body.

3. Suggest adding the more experiments with more scanner parameters and experiments environment, i.e. KVP, projection view, reconstruction algorithm, different system, or more clinical patient for validation.

4. Only subjective image quality evaluation in the experiments. Suggest adding the quantitative analysis. The authors would be focus on noise and resolution or MTF for reconstruction were influence for different parameter settings.

5. The statistical significance is not described in detail in the paper. This is an important topic and should be discussed in the main body, especially considering the reconstruction procedures.

6. Please, mention that the task is the manual delineation of similar ROI at same positions in the bone before and after implant placement.

7. Both the ROI and background region are selected manually. What is the criteria of selecting the target regions? The authors would be show it in the figures.
8. Suggest adding the image results obtained with 10 mA.

9. Figure2-figure3, please increase the resolution to remove the blurred impression.

10. In this manuscript, the authors only consider the scanner parameters for noise artifacts reduction in CT imaging. Also, some recent works provide some new algorithm strategy for noise artifacts reduction, such as [1]-[3]. I would encourage the authors to make a comprehensive comparison with different strategy.

Reference


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?
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:

Needs some language corrections before being published

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