Reviewer’s report

Title: Value of Virtual Monochromatic Spectral Image of Dual-Layer Spectral Detector CT with Noise Reduction Algorithm for Image Quality Improvement in Obese Simulated Body Phantom

Version: 1 Date: 22 Jul 2019

Reviewer: Reviewer 2

Reviewer’s report:

PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?

Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

Yes - the approach is appropriate

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?

Yes - experiments and analyses were performed appropriately

STATISTICS - Is the use of statistics in the manuscript appropriate?

Yes - appropriate statistical analyses have been used in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?

Yes - the author's interpretation is reasonable

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?

Probably - with minor revisions
GENERAL COMMENTS: The overall impression of the manuscript is very good, and the general objective to evaluate the diagnostic performance benefit of this novel dual-layer dual-energy CT system for obese patients is well justified.

There are a few minor adjustments (see below) the authors should take into considerations, but otherwise the study design, execution, interpretation and manuscript preparation follow a high scientific standard.

REQUESTED REVISIONS:

There are several minor adjustments that would benefit the quality of the manuscript:

1) In the introduction section, it might be helpful if the authors reference the articles that characterized the system after introduction to the market, i.e. S. Ehn et al., J Appl Clin Med Phys 2018, 19:1: 204-217 and S. Sellerer et al., European Radiology (2018) 28:2745-2755. Then it should be briefly explained in what sense the present work goes beyond these existing published articles.

2) Why have the authors chosen to adapt the phantom values to the portal venous phase (and not the arterial phase)?

3) Please provide more details on what pre- and post-processing steps and what noise-reduction algorithms have been used (if different from the vendors software).

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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