Title
Single-energy computed tomography-based pulmonary perfusion imaging: Proof-of-principle in a canine model

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Jeffrey F. Williamson, Ph.D.
Editor-in-Chief
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Dear Dr. Williamson:

On behalf of the authors, I would like to submit the manuscript entitled “Single-energy Computed Tomography-based Pulmonary Perfusion Imaging: Proof-of-Principle in a Canine Model” by Tokihiro Yamamoto et al. for peer review and publication as a Research Article in the Medical Physics journal. Neither the entire manuscript nor any of its contents have been accepted by any other journal nor is the manuscript being submitted to any other journal.

This manuscript describes proof-of-principle for single-energy CT pulmonary perfusion imaging. Radiotherapy that selectively avoids irradiating highly-functional lung regions may reduce pulmonary toxicity, which is substantial in lung cancer radiotherapy. Single-energy CT perfusion imaging has a higher spatial resolution, shorter scan time, and/or is potentially more cost-effective than other modalities. Moreover, this method has great potential for widespread clinical implementation, particularly in radiotherapy, as single-energy CT is already available at most centers. This canine study demonstrated the accuracy of deformable image registration with sub-voxel target registration errors, higher spatial heterogeneity of regional perfusion for diseased lung subjects than for normal lung subjects, and a strong gravitationally directed gradient for normal lung subjects.

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Thank you very much for your consideration to our manuscript. Look forward to the review.

Sincerely yours,

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