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PEER-REVIEW REPORT

Name of journal: World Journal of Clinical Oncology

Manuscript NO: 60954

Title: Autosegmentation of cardiac substructures in respiratory-gated, non-contrasted computed tomography images

Reviewer's code: 02992848
Position: Peer Reviewer
Academic degree: MD
Professional title: Staff Physician
Reviewer's Country/Territory: Taiwan
Author's Country/Territory: United States

Manuscript submission date: 2020-11-20
Reviewer chosen by: AI Technique
Reviewer accepted review: 2020-11-21 07:04
Reviewer performed review: 2020-11-23 03:49
Review time: 1 Day and 20 Hours

Scientific quality	[ ] Grade A: Excellent [ ] Grade B: Very good [Y] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Language quality	[Y] Grade A: Priority publishing [ ] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[ ] Accept (High priority) [Y] Accept (General priority) [ ] Minor revision [ ] Major revision [ ] Rejection
Re-review	[ ] Yes [Y] No
Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous Conflicts-of-Interest: [ ] Yes [Y] No

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SPECIFIC COMMENTS TO AUTHORS

Reviewer's report Journal: World Journal of Clinical Oncology Title: Autosegmentation of cardiac substructures in respiratory-gated, non-contrasted CT images Authors:Mark K Farrugia ; Han Yu; Anurag K Singh;Harish Malhotra* Date:2020/11/23 Reviewer's report: Autosegmentation of cardiac substructures in respiratory-gated, non-contrasted CT images This is an interesting manuscript as it is a comprehensive study on the feasibiliity of Autosegmentation of cardiac substructures in respiratory-gated, non-contrasted CT images. As radiation dose to specific cardiac substructures can have a significant on treatment related morbidity and mortality which limited the radiation dose to tumor located closely attach to cardiac structure and subsequently decreased the local control rate as well as overall survival. Previous studies such as RTOG 0617 and Thor et al, show dose escalation reduced patient survival, in part due to excessive cardiotoxicity in SBRT of lung ca. These findings have been supported by several other groups. However, despite these findings, definition of such structures is not standard in radiation planning at this time. This is one of the few early study investigated the feasibility of autosegmentation of the cardiac substructures in four-dimensional (4D) computed tomography (CT), respiratory-gated, non-contrasted imaging. There remain a few limitation in this study need to be address. 1.) number of patients study was too small to have a final strong conclusion . 2.) these studies have reported success in autocontouring the great vessels and heart chambers, whereas the coronary arteries and heart valves still failed autosegmentation or required complete recontouring. Damage of coronary vessels was one of the major problem of the late toxicity of radiation therapy, which until now still needed to be solved. Hopefully with continue innovation and advancement of computer technology this problem could be curbed in the near future. Nevertheless, this manuscript will add to a growing knowledge of AI contouring of

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cardia structures. and eventual lay as a foundation for the future treatment of thoracic tumors.