

PEER-REVIEW REPORT

Name of journal: *World Journal of Clinical Cases*

Manuscript NO: 74478

Title: Clinical performance evaluation of O-Ring Halcyon Linac: A real-world study

Provenance and peer review: Unsolicited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 05497207

Position: Peer Reviewer

Academic degree: MD

Professional title: Doctor

Reviewer's Country/Territory: China

Author's Country/Territory: China

Manuscript submission date: 2022-01-06

Reviewer chosen by: AI Technique

Reviewer accepted review: 2022-01-07 00:40

Reviewer performed review: 2022-01-07 03:31

Review time: 2 Hours

| | |
|---------------------------|---|
| Scientific quality | <input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish |
| Language quality | <input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection |
| Conclusion | <input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection |
| Re-review | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Peer-reviewer | Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous |

SPECIFIC COMMENTS TO AUTHORS

This work reported clinical application of Halcyon in a real-world setting, providing complementary data to the existing studies that focused on the mechanical and dosimetric aspects. Considering the clinical evidence of the new accelerator system is still accumulating, this work is of both clinical and scientific interest to the society. Major comments: The conclusion & discussion: “O-ring Halcyon Linac could achieve a better therapeutic effect” should be based on a comparison with the therapeutic effect of other systems, however, the clinical outcomes of other systems were not provided in this study, other than mechanical/dosimetric comparison in literature review. The version of Halcyon system should be described. Accordingly, please also specify the modulation resolution of MLC, and image guidance modality used for the patients involved, which may influence the patient outcomes. Why dose Halcyon have “potential radiobiology advantages” since it is still based on X-ray? Method session, please specify what ‘feelings’ about the operating the equipment were recorded, and how they were quantified objectively. The corresponding results were missing. Table3, the std and range of portal dosimetry results for chest and abdomen were missing. In addition, why is the passing rate for chest only 89.7%, which is not clinically acceptable? The lower ranges of spine and total were also very low (both 88.6%) for portal dosimetry, but the corresponding Arccheck results were much higher (93.6% and 93.8%) under the same criteria of 2%/2mm? Please double check the data, or put the explanations in the discussion session. Minor comments: The average gamma passing rates with a 2% dose difference and 2 mm distance-to-agreement for IMRT/VMAT/SRT plans were Arccheck 96.4(%) and portal dosimetry 96.7(%). Please also complement units throughout the manuscript when applicable. Figure 1: please use the same scale (3.27 CU or 3.23 CU)



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for the two subfigures. Anatomic site should be described for the figure.

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Provenance and peer review: Unsolicited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 00030389

Position: Editorial Board

Academic degree: MD, PhD

Professional title: Director

Reviewer's Country/Territory: Japan

Author's Country/Territory: China

Manuscript submission date: 2022-01-06

Reviewer chosen by: Qi-Gu Yao

Reviewer accepted review: 2022-01-13 04:44

Reviewer performed review: 2022-01-14 01:22

Review time: 20 Hours

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|---------------------------|---|
| Scientific quality | <input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish |
| Language quality | <input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection |
| Conclusion | <input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection |
| Re-review | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Peer-reviewer | Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous |

statements

Conflicts-of-Interest: [] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

The authors studied the effectiveness, safety, and quality assurance of Halcyon in clinical application by analyzing 61 patients. They evaluated the target tumor response, irradiation toxicity, and dosimetry of Halcyon plans. The study is interesting, although the number of patients studied is small and there are no control patients. I have a few comments. Major comments #1. P2, lines 19-20 and P6, lines 16-18. "11% (7/61 patients) had irreversible adverse reactions", In Table 1, the number of yes for radiation toxicities is 4. Is this discordance correct? #2. P2, line 25 and discussion. "O-ring Halcyon Linac could achieve a better therapeutic effect on the target volume". They should describe the comparison of the efficacy of Halcyon with that of conventional delivery system in discussion. #3. P4, lines 2-3 and Table 1. The concurrent therapy should be indicated in table 1. Minor comments #1. P8, line 22. Does a word of "irritated" mean "irradiated"? #2. P9, line 42. "organs at risk" is after 2nd appearance and should be "OARs".

RE-REVIEW REPORT OF REVISED MANUSCRIPT

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Reviewer's code: 05497207

Position: Peer Reviewer

Academic degree: MD

Professional title: Doctor

Reviewer's Country/Territory: China

Author's Country/Territory: China

Manuscript submission date: 2022-01-06

Reviewer chosen by: Jia-Ping Yan

Reviewer accepted review: 2022-03-15 05:57

Reviewer performed review: 2022-03-15 06:18

Review time: 1 Hour

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|---------------------------------|---|
| Scientific quality | <input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish |
| Language quality | <input checked="" type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection |
| Conclusion | <input type="checkbox"/> Accept (High priority) <input checked="" type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection |
| Peer-reviewer statements | Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |



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SPECIFIC COMMENTS TO AUTHORS

NA