Reviewer's report

Title: Propensity score matching analysis of a phase II study on simultaneous modulated accelerated radiation therapy using helical tomotherapy technique in patients with nasopharyngeal carcinoma

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Reviewer: Yong Chan Ahn

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This manuscript compared the clinical outcomes following 2 different dose schedules of curative radiation therapy for nasopharynx cancer patients. Authors adopted propensity score matching analysis. They concluded that favorable clinical outcomes were achieved by 67.5 Gy in 30 fractions (P67.5 group) using the simultaneous integrated boost dose schedule over 70 Gy in 33 fractions (P70 group). Several modifications are required to make this manuscript look more objective and scientific so that it could be more easily understood by the potential readers.

Major points:

1. Helical Tomotherapy was used in P67.5 group, however, there is no detail information on radiation therapy technique in P70 group. Was it LINAC-based IMRT or the same HT as in P67.5 group? Dosimetric comparisons in Table 3 show many differences between groups, and these should be properly explained and addressed.

2. Descriptions on how the authors delineated the gross and clinical target volumes are not friendly to the potential readers who are not majoring radiation oncology. Differences between CTV1 and CTV2 should be defined and described in the text. Provision of one or a few typical case illustration(s) would be helpful.

3. Chemotherapy actually applied to the patients seems quite heterogenous and its description by the authors are more or less confusing. It is not usual to administer monoclonal antibody (cetuximab or nimotuzumab) in treating nasopharynx cancer patients. Authors are advised to give explanations on this issue. In addition, the proportions of the patients who received induction, adjuvant chemotherapy, or both, are not described in the manuscript. Use of proper chemotherapy is critical to the clinical outcomes, and authors are advised to provide this information in detail and to integrated this factor into the uni- and multi-variate analyses.
4. Authors did not include chemotherapy actually delivered to the patients. However, it is assumed that the appropriateness of chemotherapy administration be an important determinant with respects to distant metastasis, disease-free survival, as well as toxicity profiles including mucositis.

5. Authors' main points of "shorter treatment duration, less direct and opportunistic cost, and better utilization of resource" by P67.5 may need more precise and specific discussion to derive a sound conclusion. These points naturally should be weighed against the potential detriments with respects to the clinical outcomes.

Minor points:

1. In Table 1, P70 comes first and P67.5 is next. However, this order was reversed in other tables. Authors are advised to fix the order for easier message delivery.

   Tables 2 and 5 are difficult to understand, as these showed the numbers in side-by-side fashions. Rearrangement of these numbers in different columns would be advised.

2. In Table 6, provision of the corresponding patients' number of each factor would be more informative to the readers.

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.

Not relevant to this manuscript

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