Author’s response to reviews

Title: Comparative evaluation of image registration methods with different interest regions in lung cancer radiotherapy

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Author’s response to reviews:

Responses to the reviewer’s comments

Dear editor,

We have revised article based on the reviewer’s comments, and the responses are as follows:

Reviewer reports:

Ayten Cangir (Reviewer 1): Dear authors,
I have reviewed the manuscript titled "Comparative evaluation of image registration methods with different interest regions in lung cancer radiotherapy". Congratulations to authors for such a well designed study. I think the manuscript needs some minor revisions. A well designed study with small sample size and needs some minor revisions. The article will be accepted after the requested corrections completed.

1-In Study design: Criteria for inclusion and exclusion of patients in this study should be given in more detail.
Response: Detail of Criteria for inclusion and exclusion of patients was added in section of methods, shown as “Inclusion criteria: Histological or cytological diagnosis of lung cancer; having no self-reported history of any malignant tumor; willing and able to give written informed consent; and no active or chronic infection with human immunodeficiency virus (HIV), hepatitis B, or hepatitis C. Exclusion criteria: received any chemotherapy or radiotherapy prior to surgery; pregnant or breast
feeding patients; a history or presence of other malignancy; and clinically significant autoimmune disease.”.

2-Page 7, Line 32:Tumors of patients were entitled as "lung malignant tumor" by the authors. However, it should be given for more detailed information on this subject.
Response: more detailed information about lung tumor as “patients with lung tumors showing the symptoms such as coughing, pain in the chest area, wheezing, bone pain, headache and tumors diagnosed with CT were enrolled in this study,” was added in the article.

3-Page 7, line 40: "Tumor size was 6.65±3.87 cm in diameter". Which diameter? Is it the largest diameter? Because tumors are not always spherical.
Response: Page 7, line 40: diameter means the largest diameter in three dimensions.

4-Page 8, line 18-20: Why were 53 patients divided into two groups including smaller tumor group and large tumor group according to the median tumor volume ? It should be explain and the importance of it should be supported by references.
Response: 53 patients were divided into two groups including smaller tumor group and large tumor group because movement amplitude of tumors with different sizes is not the same. Position CT images are a instant moment images, and CBCT images are several breathing cycle images, so registration will be affected by the tumor movement amplitude. Based on this principle, the tumor is divided into small tumor group and large tumor group, and the effect of tumor size on registration is compared..

5-There are no references from 7th line to 54th line on 11th page.
Response: Some contents were deleted from the article. References were added in Discussion, shown as “Leonardi, R. Cone-beam computed tomography and three-dimensional orthodontics. Where we are and future perspectives. J. Orthod. 2019; 46:45-48.

6-The aim of in this study is to compare the accuracy, advantages and disadvantages of different registration sites by CBCT images and planned CT images in patients with lung cancer. Therefore, the advantages and disadvantages of the methods should be evaluated in detail in the discussion section of the manuscript.
Response: The advantages and disadvantages of the methods were provided in the discussion section of the manuscript, shown as red mark in article.

Kaan Orhan (Reviewer 2): General

This manuscript reported a study regarding a topic about to evaluate the accuracy of cone beam computed tomography (CBCT) image registration used in image-guided radiotherapy which can be interesting to some readers of this journal. However, this reviewer has some concerns about the study.

Although the study is extensive and carefully conducted, I believe the study is not suitable for publication in the journal in its format. There is no inclusion and exclusion criteria. Moreover, how did the authors indicate the sample size. Power analysis? This section should be described further. In the introduction part, the literature review is somewhat brief, there are some other studies on the topic which authors would like to mention, please add more updated literature review here. This reviewer cannot able to catch the tumor size, since tumor since are not round/spherical and can be amorph shape
as well. How did they calculate the dimension of the tumors? This issue should be clarified. The discussion also somewhat brief. The authors should use their results comparison with contemporary studies in the literature.

Response:

1. Inclusion and exclusion criteria were added in section of Methods as “Inclusion criteria: Histological or cytological diagnosis of lung cancer; having no self-reported history of any malignant tumor; willing and able to give written informed consent; and no active or chronic infection with human immunodeficiency virus (HIV), hepatitis B, or hepatitis C. Exclusion criteria: received any chemotherapy or radiotherapy prior to surgery; pregnant or breast feeding patients; a history or presence of other malignancy; and clinically significant autoimmune disease.”;

2. The sample size was dependent on the number patients we could obtain from the clinic in our hospital.


4. The dimension of the tumors were automatically calculated by operating system software as long as the target area is sketched.

5. The discussion was revised, shown as red marks in manuscript.

In consequence, I think the manuscript needs some minor revisions. The article will be accepted after the requested corrections completed.

Response: Really thanks for your comments. We have tried our best to revise the article.