Peer Review File

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Reviewer A

Overall, I find the study to be well-structured and offering valuable insights. However, I have a few suggestions for improvement:

1. Abbreviations: It would be beneficial to ensure all abbreviations are defined upon their first use in the text. This includes terms like PFS, ITV, LC, PD-L1, EGFR, TKI, and EBRT.
Reply 1: Thank you for your comment, we have added and ensured all abbreviations are defined upon their first use in text
Changes in text: We added definitions for EGFR (Line 120), PD-L1 (Lines 131-132), PFS (Lines 154-155) and MRI (Line 200) which were missing from the text.

2. Page 4, line 148: Please consider defining PFS when it is first introduced to enhance reader understanding.
Reply 2: Thank you for your comment, we added the definition for PFS.
Change in text: We added the definition for PFS in lines 154-155.

3. Page 5, line 181: For precision, it might be helpful to say "GTV/ITV" instead of just "ITV."
Reply 3: Thank you for your comment, we changed the text as suggested to GTV/ITV
Change in text: ITV changed to GTV/ITV (Line 187).

4. Page 5, line 205: Since "local control" was already defined as LC, using consistent terminology would be preferable.
Reply 4: Thank you for your comment, we changed the text accordingly.
Change in text: “local control” was changed to LC (Line 213).

5. Page 5, line 220: Adding the age range after stating the median age (64 years) and rephrasing the sentence for readability would be beneficial
Reply 5: Thank you for your comment, we added the age range and divided the sentence for readability.
Change in text: age range was added (39-82 years), the sentence was divided for better readability (Lines 227-228).

6. Page 6, line 236: The sentence about the total number of lesions treated with SBRT could benefit from a rewrite for clarity. Additionally, consider moving the timeframe information to the Methods section.
Reply 6: Thank you for your comment, we rephrased the sentence regarding total number of lesions, we moved the time frame to methods section under “Study design and patients eligibility”.
Changes in text: We moved the time frame from results section (Line 244) to methods under “Study design and patients eligibility” (Lines 161-162) we rephrased the sentence to be more accurate, “at a single institution” (Line 162) was removed since it appears in line 160.

We also rephrased the sentence regarding total number of lesions as suggested and moved it to appear later in the paragraph for better clarification. (Line 246).

7. Page 6, line 237: Clarify the statement about 29 patients receiving "One SBRT." Specify if it refers to one site, one course, or one fraction. This clarification should apply to subsequent statements as well.
Reply 7: Thank you for your comment, each patient received one or more SBRT courses as mentioned in lines 241-243, we clarified the sentence as rightfully suggested.
Changes in text: We clarified the sentence as suggested, we reorganized the paragraph for better clarity and coherence. (Lines 243-246).

8. Review of Tables:
• In Table 1, describing all abbreviations in the footnotes, including PD-L1, EGFR, TKI, and EBRT, would enhance reader comprehension.
Reply 8a: Thank you for your comment, we added the abbreviation in the foot note of table 1.
Changes in text: we described all abbreviation in the footnote of table 1 (see table 1 footnotes in "Tables" document).

• In Table 2, including ranges for GTV (cc) and Median time from systemic treatment onset to SBRT (months) would be valuable. Also, add alpha/beta for the calculation (as mentioned in the manuscript). Correct the definition of GTV from "Growth tumor volume" to "Gross tumor volume." Additionally, address the absence of cases with progressive responses to initial systemic agents.
Reply 8b: Thank you for your comment, we added range values in table 2 for GTV and median time for systemic treatment onset to SBRT, we corrected the definition of GTV in table 2 footnote. We addressed the absence of cases with progressive response to initial systemic therapy in the methods section as patients with poor initial response to systemic treatment were not included in the study. Alpha/Beta=10 calculation was added and BED_{10} abbreviation (Line 189) was used. (Tables document shows BED_{10} as abbreviated in line 192).
Changes in text: Ranges for GTV and median time from systemic treatment onset to SBRT were added to table 2, description for ICI was also added to table 2 footnotes ("Tables" document), alpha/beta=10 calculation was defined as BED_{10} (Line 192), We added this abbreviation to table 2 while also defining it in the tables' footnotes ("Tables" document).
The absence of cases with progressive response to initial systemic therapy was addressed in the methods section (Lines 167-168): "Patients with initial poor response to systemic therapy who received palliative intent radiotherapy were not included in this analysis"

9. Table 3: Describing the abbreviations used in the table as footnotes would contribute to clarity. Additionally, it's noteworthy that the NRG-LU002 trial recently closed to accrual since it didn't meet the phase II PFS endpoint. It's crucial to consider that they didn't use an ablative dose (BED less than 100 Gy). Hence, there is a need to examine this data very closely and potentially discuss its relevance to your findings.
Reply 9: Thank you for your helpful comment, definitions for abbreviation used in table 3 were added, regarding the NRG-LU002 trial we modified the paragraph to contain information about

the trial closure to accrual, we also mentioned that ablative radiotherapy was not required which can impact the results, citation for this trial was also modified to contain information about the study closure to accrual. We also added a point regarding a possible use of time to change of systemic treatment as a possible endpoint as some patients might benefit from salvage SBRT without the need to switch therapy as shown in our study, reference 29 was added to complement this point.

Changes in text: definitions for abbreviation used in table 3 were added (Table 3 footnotes in "Tables" document), CI rounding error was fixed in line "Male vs Female" (Table 3). Information regarding NRG-LU002 status was added to lines 322-326. A possible use of time to change of free survival was added to line 327-330 along with reference 29 (new reference, see lines 496-497). Citation 28 was modified (Line 491-495)- as the trial is now closed.

Reviewer B

This is a retrospective study that investigates the clinical outcomes of stereotactic body radiotherapy for treatment of oligoperistent or oligoprogressive diseases on a specific subset of NSCLC patients that received systemic treatment. For a more personalised and targeted cancer care for NSCLC patients, the identification of induced oligometastatic disease state and subsequent concurrent oligometastatic-directed SBRT and systemic treatment warranties an in-depth research and outcome data for evidence-based practice. I recommend the publication of the manuscript with some minor revision.

The authors have successfully emphasised the relevance of the work in the introduction; methodology and data analysis are systematic and appropriate for the study conducted. Appropriate statistical tools and metrices are used. STROBE reporting checklist has been completed.

Tables and figures compliment the results and discussion. The abstract, results and discussion sections are consistent with the findings of this study.

Some comments and suggestions to address before the manuscript can be accepted for publication.

• Title, although has all the keywords, does not establish a clear link between SBRT and novel systemic therapies relevant to the work presented in the manuscript.

Reply 1: Thank you for your comment, we modified the title to better emphasize the link between SBRT and novel systemic therapy.

Changes in text: The title was changed to: "Outcomes of Extracranial Stereotactic Body Radiation Therapy for Induced Oligometastatic Non-Small Cell Lung Cancer on Novel systemic therapy"- Line 1-4, Oligoprogressive and oligopersistent were change to "Oligometastatic".

• Line 84-88 (Key findings): Compare the data presented here to the data for non-SBRT treatment and systemic therapy only to show the readers the benefits of SBRT on the end points.

Reply 2: Thank you for your comment, we mentioned that consolidative SBRT to the induced oligopersistent disease compares favorably to recent prospective studies of novel systemic therapies. SBRT to oligoprogressing disease also compares favorably to second or third line therapies as is now mentioned in the text. These comparisons including relevant references

appears in the discussion (Lines 365-367).
Changes in text: Comparison between recent prospective studies and consolidative SBRT was added to lines 89-90, Comparison between SBRT to oligoprogressing disease and second/third line systemic therapy is written in lines 92-94

• Instead of generalising 'systemic therapies' is there a more specific type of systemic treatment that when combined with SBRT would yield better clinical outcomes? Although explained in the manuscript, it is worth mentioning in the key highlights as well to garner more interest.
Reply 3: Thank you for your comment, specific types of systemic treatment were added under "What is known and what is new?"
Changes is text: specific systemic treatment which were used in our trial were added to lines 100-101.

• Line 123-124: Sentence not clear. How does new systemic agents lead to an increase in OMD? Do you mean that PET/CT imaging has made it easier to identify OMD? Please clarifying the sentence.
Reply 4: Thank you for your comment, We added an explanation for the contribution of PET/CT imaging for identifying OMD, moreover we added an explanation for novel systemic therapies' effect on OMD prevalence and better connected this sentence with the next which present studies proving this topic (Lines 131-133)
Changes in text: Lines 127-131 were modified to better clarify the point, we added an explanation in lines 127-128 for PET/CT effect on OMD identification as well as an explanation for new systemic therapies effect on oligometastatic disease prevalence (Lines 128-129), "Moreover" on line 131 was deleted in order to connect the points made in the sentence before with the trials presented on lines 131-133

• Line 201: 'off' should be replaced with 'of'.
Reply 5: Thank you for your comment, we corrected the mistake.
Changes in text: off corrected to of in Line 208.

• Line 242: Provide the units for median GTV value.
Reply 6: Thank you for your comment, GTV values were added.
Changes in text: GTV value (cc) was added to Line 250.

• Results and discussion section does not discuss about male vs female data, although mentioned in Table 1 and 3.
Reply 7: Thank you for your comment, male vs female data were added to the results section
Changes in text: Male vs female data were added to results section (Lines 275-277).

• Table 2: mention unit of BED in the table.
Reply 8: Thank you for your comment, BED units were added to table 2
Changes in text: BED units (Gy) were added to table 2 (Tables document), We also defined BED_{10} in the methods section and in the tables' footnote.

• Table 3: Caption for the table require foe detailed description.

Reply 9: Thank you for your comment, further description was added to table 3 caption

Changes in text: Further description was added (Table 3 caption- “Tables” document), definitions for the added abbreviation were also added (Table 3 footnotes “Tables document).

• Line 363 (Conclusion section): This section needs to be rewritten to include all the key findings of this study and highlights discussed in discussion section, such as use of routine serial PET-CT for diagnosis of prevalence of oligopersistent and oligoprogressive states for targeted SBRT with systemic treatment. In current form the conclusion section seems to be written in a rush.

Reply 10: Thank you for your comment, conclusion section was rewritten to include all key findings as well as to highlights points discussed in the discussion section.

Changes in text: “Conclusion” section was rewritten, Key findings including PFS and TTCST were added (Lines 380-384), information about PET-CT imaging used in this trial was also discussed (Lines 385-386)