

Peer Review File

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Reviewer A

In this article, the authors aimed to review literature on the topic of PCI in SCLC patients, which has been a controversial topic in clinical practice. The manuscript is generally well written and should be acceptable for publication with some minor revision:

Thank you very much for taking the time to provide an expert review of our manuscript. We have responded to each of your comments (below) and revised the manuscript accordingly.

Comment 1. There are several recent reviews evaluating PCI literature (PubMed ID: 36421007, 34902829, 35530654, 35243025, etc.) and there were at least some overlapping contents (e.g. Table 1 summarizing ongoing clinical PCI trials overlaps with Table 1 in the 36421007 review) with the present manuscript, these reviews should be cited properly.

Reply 1: These reviews were added as references. The references are at 35 with these additions.

Changes in the text:

36421007: Taken together, the findings of these two studies demonstrated that observation over PCI may be an acceptable strategy in patients with ES-SCLC(22). (page 12, line 172)

34902829: While thoracic radiotherapy has demonstrated a modest OS benefit in patients who have a response following systemic therapy, this is yet to be validated in the era of immunotherapy and remains a topic of ongoing study (23,24). (page 12, line 177)

35530654: While these two studies confirm the safety of HA in PCI, the conflicting results on neurocognitive function begs the question on the benefit of HA-PCI (28). (page 16, line 261)

35243025: The 3-year OS was 15.3% versus 20.7% for the no PCI and PCI groups, respectively ($p=0.03$), as shown in **Table 1** (15). (page 9, line 117)

Comment 2: In the section on Memantine (starting on line 200, page 14), the authors should properly refer to the ongoing PCI trials that set memantine use as stratification factor (EORTC PRIMALung/NCT04790253) or allows memantine use (NRG CC003/NCT02635009, already in Table 1).

Reply 2: EORTC PRIMALung added to text and NRG CC003 stratification is elaborated (page 16, line 263).

Changes in the text:

The recently closed trial NRG CC003 (NCT02635009) will determine if HA-PCI should be standard of care treatment and assess the benefit of memantine with inclusion as a stratification variable (29). The ongoing phase III EORTC PRIMALung trial is randomizing patients with ES-SCLC or LS-SCLC to MRI surveillance vs MRI surveillance plus PCI. The primary

endpoint is non-inferiority of OS of MRI surveillance alone compared to MRI surveillance with PCI, with stratification for memantine.(30)

Comment 2: Figure 1 was not indexed in the main text?

Reply 2: Thank you for recognizing this.

Changes in the text:

The first major trial incorporating hippocampal avoidance WBRT (HA-WBRT) in patients with brain metastases was RTOG 0933 (8,9), see Figure 1. (page 14, line 214)

Reviewer B

Very nice, concise, and informative mini-review. I think it's well-organized and no more correction may be needed.

Thank you very much for taking the time to provide an expert review of our manuscript.