OPEN PEER REVIEW REPORT 1

Name of journal: Neural Regeneration Research
Manuscript NO: NRR-D-22-00141
Title: Hematopoietic progenitor cells as diagnostic and therapeutic targets in Alzheimer's disease
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COMMENTS TO AUTHORS

The manuscript entitled "Hematopoietic progenitor cells as diagnostic and therapeutic targets in Alzheimer's disease" mainly reviewed recent work about the feasibility of HPCs and EPCs as early biomarkers of AD and pharmacological targets for future treatments. Based on the pathophysiological mechanism of BBB injury in AD and the protective effect of HPCs, EPCs and GCSF on blood vessels, the author proposed a reasonable inference of their importance to AD. However, there are still many problems and shortcomings as follows.

1. The review elaborated the association of circulating levels of HPCs and cognitive decline, MCI and AD, but is not intensive. It is suggested to add researches related to mechanism.
2. The article used almost the same length to prove the importance of EPCs, but the title only shows the diagnostic and therapeutic role of HPCs for AD.
3. As in lines 26-28, "Moreover, endothelial progenitor cells (EPCs) form a subtype of HPCs that exhibits characteristics of both endothelial and stem cells", this description is not enough to explain the relationship between EPCs and HPC, and a more accurate description currently accepted is recommended.
4. In the introduction section, the author referred to only one article (Custodia et al., 2022), which was not reasonable for a review article. It is suggested to add more citations for enrichment, and the relationship between vascular and endothelial dysfunction and AD should be involved more.
5. In the first part of the text, it was not strongly demonstrated that the association of HPCs and cognitive decline in healthy subjects. Because compared to the younger, the older not only have a decline in HPCs level, it may be the other factors caused cognitive decline.
6. Some parts are tedious and meaningless tautology. As in lines 69-74, consolidation is recommended. Moreover, the same problem exists in lines 98-99 and 92-93.
7. It is suggested to combine the first and second parts of the main body.
8. In lines 94-95, the description of CD34+ HPCs counts in early AD is unclear and ambiguous.
9. To enhance logic, it is suggested that lines 108-109 be placed before line 119 (explaining and discussing controversial results).
10. For therapeutic potential of G-CSF in AD, references need to be added to make that part more meaningful.
11. Some statements are not standard, as in line 68, "few studies". Be careful to check each sentence!

Additionally, the author cites only 13 articles in the whole article. Please consider the above questions carefully and enrich the content of the review to provide readers with the most comprehensive research, viewpoints and knowledge points in this field.