Author's response to reviews

Title: Treatment of progressive supranuclear palsy with autologous adipose tissue-derived mesenchymal stem cells: a case report

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The pathophysiological knowledge of brain dysfunction, particularly for Alzheimer’s disease, has increased over the years. Much of this knowledge has been revealed using current imaging techniques along with other genetic and pathological research. This knowledge provides an understanding of the mechanism that leads to brain dysfunction and disease [15]. In the current study, however, we focused the evaluation on the safety rather than efficacy of stem cells due to our conditions as PSP patients are rare, difficult to diagnosis and revealing of the neuropsychological changes. Nevertheless, to our knowledge, this
clinical case is the first case report using adipose tissue-derived mesenchymal stem cells to treat a PSP patient.

We believe that increasing preclinical and clinical data on MSCs’ effect in conjunction with a more large-scale clinical study in neurodegenerative will lead to a more basal understanding of brain damages and neurodegenerative disease.”


The mentioned reference by the reviewer is the corner-stone paper which reveals a better understanding of the pathophysiological mechanisms of cerebrovascular deregulation and neurodegenerative condition, exhibited by Alzheimer’s disease and other subtypes of dementia.

As the reviewer pointed out, our follow-up is somewhat subjective, but we focused the evaluation on the safety rather than efficacy due to our conditions as PSP patients are rare, difficult to diagnosis and revealing of the neuropsychological changes via imaging technique, genetic and pathological features, suggesting that alterations of neurovascular regulatory mechanisms may lead to brain dysfunction and disease.

We mentioned in our manuscript (ver 6.0, Page 9, Line 178~189) to the reviewer’s pointed out.

Reviewer 2 - Comments to authors:

This clinical case show a decrease of progressive supranuclear palsy using autologous adipose tissue-derived mesenchymal stem cells. Had an important weakness for an exact interpretation: mix to different routes of administration (Intravenous and intrathecal).
Response: Page 8, Line 155~162

In our animal study of Alzheimer disease, intravenously administered human AdMSCs localized in CNS, differentiated into nerve cells, and protected the system from death of nerve cells by increasing neuroprotective agents [14]. These results present the possibility of treating PSP patients with MSCs. In this case report, we used mixed administration routes of intravenous and intrathecal. While intrathecal route may enhance therapeutic effects by facilitating AdMSCs movement to CNS, the dosage of ASCs is limited due to the narrow intrathecal cavity compared to i.v. administration. Therefore, we also used the I.V. route to increase the dosage of AdMSCs, leading to a higher efficacy.


We explained in our manuscript (ver 6.0, Line 155~162) about the intravenously effect of AdMSCs in an Alzheimer’s animal model.

If further the explanation is necessary in the discussion, please let us know, and we will happily comply.

Thank you again for your time and consideration.

Your sincerely.