Reviewer's report

Title: Antibody-LGI1 autoimmune encephalitis manifesting as rapidly progressive dementia and hyponatremia: a case report and literature review

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Reviewer: H. Prüss

Reviewer's report:

The authors describe a rather typical case of LGI1 encephalitis with predominant memory impairment. As autoantibody-associated diseases are increasingly appreciated differential diagnoses in dementia, the case illustrates the need for consideration of autoimmunity in diseases of memory and cognition and therefore adds to the literature. However, the conclusions are not well supported by data from the case report. I recommend rigorous restructuring according to the following suggestions.

Abstract:

- "the clinical symptoms improved significantly" --> which statistical test?

- all the imaging data (5 figures!) are not mentioned in the abstract

- "case also illustrates that this excellently treatable condition" --> often less well treatable, almost all patients develop atrophy

- "can be easily misdiagnosed in face of dementia or cognitive decline" --> I suggest changing to "can be easily misdiagnosed as neurodegenerative dementia or cognitive decline"

Case Presentation

- "short-term memory" --> rather anterograde amnesia?

- "other biomarkers of AE" --> which are the other biomarkers of AE?

Discussion

- "ASL is noninvasive, and it is a useful tool to early diagnose anti-LGI1 AE" --> I am not aware of any proof that ASL is accepted to be useful for the early diagnosis of LGI1 encephalitis
Figures

- One could potentially panel all (reduced number of) images into one figure

- Fig. 1: this is a routine assay, no figure is needed to visualize. If figure preferred, than comparison to untransfected HEK cells needed.

- Fig. 2: one or two figures are more than enough to show MRI changes.

- Fig. 3: in contrast to the figure legend, the FLAIR image shows persistent hyperintensities, in particular in the left hippocampus (which is also what one would expect after 12 days).

- Fig. 4: you would not expect a tumor in the brain, reduce number of PET images.

- Fig. 4: looks like striatum hypermetabolism which is common in LGII encephalitis, please comment (hard to judge from the small low-resolution images)

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published
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