Reviewer’s report

Title: A new age-related cutoff of medial temporal atrophy scale on MRI improving the diagnostic accuracy of neurodegeneration due to Alzheimer's disease in a Chinese population

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Reviewer: Klaus P. Ebmeier

Reviewer's report:

This is a reasonably sized carefully conducted study determining ROC for a variety of clinical MRI measures used in the diagnosis of AD and MCI.

Abstract does not include MCI results, although these should be of most interest, both against controls and Alzheimer patients.

"Total 585 subjects were diagnosed as normal..." should be reworded as: "Out of 585 enrolled subjects, 296 participants were included and diagnosed as normal cognition ....."

The authors write in their discussion: "In this study, the MTA showed poor accuracy for discriminating aMCI from NC, and this result indicated that the new age-based cutoff score may be more suitable for the diagnosis and differential diagnosis typical AD phenotype in clinical practice". This is not surprising, as the aMCI group is likely to be less homogenous than AD patients, with some never reaching AD in their lifetime. It does not require great clinical acumen to diagnose dementia, but by placing MCI between controls and demented patients with some discrimination against both, MTA may well play a useful clinical role.

While "all subjects were enrolled from a memory clinic, the subjects identified as normal cognition may not be representative of the normal healthy population", this is also a strength, as the "worried well" require a diagnosis, but the unconcerned well do not! You could argue that using a selected group of super healthy subjects would make the diagnostic task too easy for you.

Figure 2 requires revision - it is not easily understood and may be dropped and replaced by a table or in the text?
Figure 3 is nice, why don't you add the equivalent figures for control vs MCI and MCI vs AD?
Suppl Figure can be omitted, there are many examples available now.

Typos:
AUC was 0.0.598
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.

Yes

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

Yes

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.

I am able to assess the statistics

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

Acceptable

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