Author’s response to reviews

Title: Preliminary application of 3.0T magnetic resonance chemical exchange saturation transfer imaging in brain metastasis of lung cancer

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Author’s response to reviews:

Dear Prof. Tamara Hughes

Thank you for giving us the opportunity to revise and resubmit this manuscript. We really appreciate the time and detail provided by each reviewer and by you. The manuscript has certainly benefited from these insightful and revision suggestions. The manuscript has been carefully revised in response to the reviewer’s comments and suggestions, detailed response to their comments are below, and we have made changes in the manuscript accordingly, revised words and sentences have been marked by single underlining.

Yi Zhang (Reviewer #1): In this manuscript, the authors applied the chemical exchange saturation transfer imaging technique to patients with brain metastasis of lung cancer, and compared the results to those from patients with glioma and normal controls. Forty-one patients and twenty controls were enrolled in this study. This is a novel application of the CEST MRI technique. However, the quality of the work needs to be improved, especially regarding the acquisition and processing of CEST images.
Major comments:

1. Although the quantitative APTw results show a substantial difference between lesion and non-lesion regions, I do not see any clear contrast between tumor and normal tissues in the APTw images provided. Please clarify.

Response: The images used in the article were adjusted and marked with arrows of different colors.

Minor comments:

1. Line 152, Page 7: what is OAx CEST imaging? In addition, please report CEST saturation parameters in the manuscript.

Response: Oblique axis( OAx ) CEST imaging.

CEST saturation parameters : Continuous saturation, Amplitude of saturtion RF =2 ut, Duration of saturtion RF =400 ms, Number of saturtion RF =4 ,Crusher amplitude scale =1 ,Extra space after crusher =0 ms.

2. Lines 203 - 206, Page 10: move this sentence to the Methods section.

Response: It has been modified.

Reviewer 2 (Reviewer #2): PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?

Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

Yes - the approach is appropriate
EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?
Yes - experiments and analyses were performed appropriately

STATISTICS - Is the use of statistics in the manuscript appropriate?
Yes - appropriate statistical analyses have been used in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?
No - there are major issues
Response: It has been modified.

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?
Maybe - with major revisions
Response: It has been modified.

PEER REVIEWER COMMENTS:

GENERAL COMMENTS:
The study has an interesting design.
The question to differentiate metastasis in the brain from other tumors is of great clinical importance.
Unfortunately the manuscript is very badly written.
Every sentence needs detailed editing.
In the conclusion it is not clear, whether CEST is a good method to differentiate the tumor forms.
Response: For the language in the text, a relatively large revision was made.
REQUESTED REVISIONS:

The text needs detailed editing of every sentence. The conclusion should be modified to make the result more clear to the reader. It is difficult for me to make detailed comments about the methods and designs before edits are made to the manuscript.

Response: For the language in the text, a relatively large revision was made. The conclusion has been modified.

Images should be presented in colors.

Arrows should be added to the pictures, explaining the carried information to the reader with reference in the description of the figure.

A description of the image is necessary, for example: Axial view of the human scull.

Response: The images used in the article were adjusted and marked with arrows of different colors.

And added the necessary captions.

ADDITIONAL REQUESTS/SUGGESTIONS:

Professional English edited is needed

Response: For the language in the text, a relatively large revision was made by someone who is fluent in English.

Best wishes,

Yonggui Yang.