

Reviewer Report

Title: Advanced lesion symptom mapping analyses and implementation as BCBtoolkit

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Reviewer Comments to Author:

In this manuscript the authors demonstrate impact of a lesion on the functional and structural connections or disconnections in frontal lobe lesion patients using category fluency task. Additionally cortical thickness was used which provide a bridge between the cognitive and behaviour measures and the applied methods are available in an open source toolbox called bcbtoolkit.

Major comments:

1. White matter disconnection- Which two groups were compared using the Kruskal Wallis test is not clear?
2. The authors have done several different analyses and it is very difficult to follow and does not look like hypothesis driven more exploratory analyses. For the reader would be very useful to have a pipeline figure to illustrate the various analyses steps.
3. Connectome maps based on only 10 normal participants for the DTI and comparing them to n=37 patient cohort is not very trivial? The covariance in the tracts was based comparing present or not present could also be artifacts?
4. The category fluency task scores was a simple integer value over the whole paradigm which was then correlated is not clear?
5. The authors bring in functional connectivity as support for the dysfunctional and disconnected area will impact the indirectly connected areas. Better approach would be to prove this by causal approaches like effective connectivity (direction of the connection) instead of functional connectivity which is only correlation.
6. Some parts mainly the methods and the results are difficult to follow english can be improved like for ex: in discussion „consequences upon a patients' "

Minor comments:

Full forms of acronyms at first mention: What is RR?

Level of Interest

Please indicate how interesting you found the manuscript: An article of importance in its field

Quality of Written English

Please indicate the quality of language in the manuscript: Needs some language corrections before being published

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