Reviewer’s report

Title: Personalized objects can optimize the diagnosis of EMCS in the assessment of functional object use in the CRS-R: a double blind, randomized clinical trial

Version: 2 Date: 22 Jan 2018

Reviewer: Luigi Trojano

Reviewer's report:

In the revised version of their paper the authors addressed several issues raised after reading the original manuscript. The paper is improved, but I believe that several changes are still necessary to improve it.

1) The authors provided some details about assessment of presence of motor responses in their patients. However, in doing so the authors did not specify whether they selected patients on the basis of this clinical feature. Moreover, it could be useful for the clinicians to have more details about the behaviour with personalized vs. non-personalized objects in the five patients who improved with personalized objects.

2) The authors specified that order of administration of the two versions of CRS-R was counterbalanced across subjects. However, they did not specify how long time intervened between assessment sessions (they only stated that the delay was 'as short as possible'. Do they mean in the range of hours, days?) Moreover, the authors did not specify whether motor responses were consistent across repeated examinations.

3) The authors did not specify whether objects were selected among actual patients' personal belongings.

4) Data about features of the patient sample are presented twice, in the method and in the result section. The authors should emend the text. By the same token, in the discussion the authors reported summary statistics already presented in the result section.
5) The authors stated that a patient diagnosed as MCS- showed 'object use to both the personalized objects and non-personalized objects (the comb and mobile phone)'. This finding might cast doubt on the diagnosis in this patient.

6) The discussion section might briefly outline putative mechanisms of the improvement described in this study. The authors might cite further data about improvements in responses with familiar/personal stimuli. Moreover, the authors might comment on the fact that some patients showed a parallel improvement on the motor and on the arousal scale during the 'personalized' examination. This finding could suggest that the improvement on motor scale was related to enhanced arousal.

7) Data about follow-up should be presented in the result section, and commented upon in the discussion section. Since all patients are reported (by family members) to be still in EMCS at follow-up, this finding could suggest a misdiagnosis at the baseline, or alternatively a change in clinical status intervened during the assessment period. Both alternatives might be problematic for interpretation of findings and should be discussed.

8) Several typos and English usage mistakes are still present throughout the manuscript. A very very careful editing is mandatory. Below only a few instances.

Abstract, line 13: The rest assessments were performed..

P5, line 11: sound stimuli when patients are scaned with PET [7]

P7, line 8: The order of the two assessor patients was randomized

P9, lines : effective behaviors like smiling, laughing, frowning, crying (affective?)

P10, lines 1-2: All of the 5 EMCS patients are still in EMCS which reported by their family members.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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?
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Yes

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