Reviewer’s report

Title: The overall decline of core executive function components in patients with amnestic mild cognitive impairment: a cross-sectional study

Version: 1 Date: 24 September 2012

Reviewer: Alberto Costa

Reviewer’s report:

This is an interesting, well-designed and generally well written study that should make a valuable contribution to the literature. I have some suggestions that could help to improve the manuscript if a revision will be required.

Major Compulsory Revisions

1) More information about the characteristics of the aMCI sample (i.e., how many single domain and multiple domain subjects? Among multiple domain subjects, which cognitive domain plus memory was impaired?) should be given.

Which is the rationale to include in the aMCI sample subjects who present with executive deficits on routine neuropsychological tests? Indeed, these subjects, that could be defined as aMCI multiple domain (plus executive deficits), are reasonably expected to perform worse than healthy controls on tasks tapping executive capacities. Rather, the most interesting findings refer to aMCI individuals who do not present with obvious executive deficits, but, nevertheless, show significant reduced executive functioning in respect to healthy controls.

Moreover, were individual with depression excluded (did the authors administer some depression scale?)?

2) In the introduction, the discussion on the contrasting results reported in previous studies should be more explicative. Indeed, this is an important point to justify the present research and appears to be quite generic.

3) More-odd shifting task. More explanations should be given for the way used to compute the switch cost. Indeed, it seems to me that in the "shifting" block both non-switch and switch trials are presented (is this right?). If it is so, why is the switch cost computed by using non-switch trials of a different block (i.e., the control one)?

4) Statistical analysis. Given the high number of measures used in a relatively low sample, some measure should be adopted to avoid alpha inflation particularly for post-hoc comparisons.

5) Z-scores. In calculating Z-scores, it is not clear which scores were used ("entire sample" at p. 11 line 8, includes MCI and healthy subjects?). More in general, I wonder whether the analysis on Z-score actually adds significant valuable information to the manuscript.

6) The discussion is somehow unfocused. It should be revised in order to make it more tight to data.
7) In the discussion, the authors often refer to the finding showing that aMCI subjects exhibit worse executive performance than healthy controls as if it would sustain the presence of a deficit. Indeed, this conclusion is not fully warranted as aMCI subjects' performance is not compared with standardized performance of a normative population. In this regard, I would, thus, suggest to avoid the term "deficit".

Discretionary Revisions
1) In tables, the tests should be named at length to make the tables themselves more easy readable.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests