Reviewer's report

Title: Neglect-like characteristics of developmental disregard in children with cerebral palsy revealed by event related potentials

Version: 2 Date: 14 August 2014

Reviewer: Dido Green

Reviewer's report:

Review
This is an interesting study aiming to understand the basis for Developmental Disregard (DD) in children with unilateral cerebral palsy (UCP). The paper is well structured to present research in an area of importance to researchers and clinicians. There are one or two points that need clarification and arguments requiring expansion in order to ensure this paper makes a full as well as seminal contribution to the literature. Each section will be discussed in turn:

Abstract - discretionary revision
This is clear and concise although the conclusion is not as clear from the evidence presented that the NI is associated with diminished visuo-spatial attention in children with DD. Furthermore, the hypothesis stated that they expected the N2 and P3 ERP components to be enhanced and not necessarily the N1. This make become more apparent with the recommendations (see below).

Introduction - compulsory revisions
This was clear and well formulated however, there is limited information on the visual spatial aspects underpinning unilateral neglect in Stroke and or hypothesised in DD. While the authors have discussed the complexity of the developmental issue in UCP, paragraph 4 beginning ‘Apart from’ doesn’t consider the considerable changes in Executive Function development and attention-response inhibition processes that occur in middle childhood. Bearing in mind the ages of the children in this study, it would be helpful to elaborate on these points. Para 8 beginning ‘ERP components’ doesn’t make mention of the N1 and its role in visual spatial attention – therefore it is difficult to link the results and discussion to the literature.

Discretionary but an early paper by Rizzolatti and Cmarda (1967) makes interesting reading (Neural Circuits for Spatial Attention and Unilateral Neglect, Advances in Psychol. 45, 289-313

Methods - compulsory revision
Please define MACS and VOAA-DDD-R before using abbreviation and provide more information for readers not familiar with these scales and assessments. Please also outline whether any information on cognitive ability was available and vision or visual perceptual functions (e.g. did any children have
homonymous hemianopia?). Please also confirm if any of the children were colour blind bearing in mind the colour selection for the stimuli.

Please define what was the motor response required eg. to touch the screen or a switch and at what distance of reach.

Please explain how t-tests were adjusted for repeat testing (eg. Bonferoni adjustment) and why other post-hoc analyses were not chosen.

Results

It would appear from Table 1 that, while the means and SDs of age are not significantly different between groups, the ages of the children do suggest more older children (9 years plus) in the non DD group. While there is a younger child in this group (4.8 years) the mean is higher (8.8) while the DD group has an older child but with a lower mean. In view of the significance of age on attention control and EF, an on-line supplement of individual characteristics would be helpful to understand whether the younger children were less impaired (MACS level) etc. As such, it would be helpful to re-run all analyses to control for age and severity (and interaction) as covariates.

Para 3 of Results final sentence states ‘these electrodes’ and refers readers to figure 4 which includes 3 electrodes. The analyses have only reported on two. Also – for both Figure 4 and 5, please provide the electrode label for each bar to aid interpretation.

Para 6 – it would be helpful to clarify across which electrodes or all of which differences were found and for both hands or one in particular as it is not clear from Figure 5.

Discussion and Conclusion - Essential revisions

More discussion on the NI links to visual spatial attention are required to support interpretation as well as greater consideration to the limitations of the study with respect to availability of cognitive and perceptual information on the children.

In summary

A very interesting paper and topic. Further analysis/control for age is required, especially in the absence of information on IQ and visual perception. This paper has the potential to shape directions in research and clinical practice.

Minor

Methods para 2 final sentence should be ‘to’ and not ‘till’

Methods para 5 – please define EOG before using.

Methods para 6 please define GLM before using

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare that I have no competing interests