Reviewer’s report

Title: The clinical benefit of array-based comparative genomic hybridization for detection of copy number variants in Czech children with intellectual disability and developmental delay

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Reviewer: Krzysztof Szczaluba

Reviewer's report:

Wayhelova et al. provide interesting data on Agilent platform array results in mixed population of Czech pts with neurodevelopmental problems/dysmorphism. The choice of Agilent is reasonable, although one must bear in mind that other platforms like CytoSure from ISCA would include LP/P rearrangements of less than 200kb. It can roughly be estimated that without the 200kb threshold the additional P/LP findings could amass to about 5%.

The results are not novel as they confirm the 20% additional efficiency of array after traditional cytogenetics. The added value of this work may be in already provided quite detailed phenotype-genotype analysis of cases. This could be useful for clinicians searching for clinical significance of unique rearrangements in their pts.

Major comments:

- English could be greatly improved, e.g. ‘...as the most common identifiable issue...’

- Have there been any interesting candidate genes within unique regions that could be candidates for the observed phenotype? The content of the duplicated or deleted regions is the strongest factor for their pathogenicity. This data in the Results and Discussion could greatly improve the work.

- Please explain why reanalysis of random DNA samples is recommended.

- What hard data do you provide to show that CNVs less than 500kb are likely familial (not familiar) in origin? I do believe this is overestimation.

- I would always write 'susceptibility locus' towards 15q11 and 16p13, i.e. I would never call them pathogenic by themselves as suggested in lines 275-276. Have you run WES particularly on these pts?
Sentence 'Most individuals...' lines 54-55 is controversial (what age?). Mild end of ID is 'school age' and this is much more common.

No minor comments, provided English is much improved.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

**Quality of written English**
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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