Reviewer’s report

Title: Efficacy of Levetiracetam for Neonatal Seizures in Preterm Infants

Version: 0 Date: 16 Oct 2017

Reviewer: Courtney Wusthoff

Reviewer's report:

This retrospective case series describes the experience at a single center which used levetiracetam as first line treatment for neonatal seizures in preterm neonates over a two year period. The series describes response and safety data from 37 preterm neonates, at a gestational age ranging from 26-37 weeks. The authors report 21 of the 37 (57%) responded to levetiracetam alone, and that none had adverse effects. These results are novel, in that there is very limited evidence published regarding the use of levetiracetam in preterm neonates. The results must be read with caution, however, as the methods are inadequately detailed. At various points in the manuscript, the authors define response to treatment as: (1) seizure resolution by the end of the first week, (2) seizure resolution within an hour with no recurrence within 48 hours, and (3) seizure resolution within 24 hours. The same result is presented throughout (n=21 or 57%). It is not clear whether all three endpoints were measured, and it is just coincidence that each had the same result, or whether it is an error that these endpoints are described seemingly interchangeably. The other significant limitation is the lack of detail given about EEG monitoring in these subjects. The methods initially describe neonatal seizures as being identified either clinically or by video EEG, but then later states that all subjects had EEG confirmation of seizures and continuous EEG monitoring until seizure control. Continuous EEG monitoring for both diagnosis of seizures and to confirm seizure control for 48 hours after seizure resolution is the gold standard. If this was how cEEG was used, including explicit details about the minimum duration of cEEG would be helpful. Similarly, it would help to explicitly confirm that all seizures were confirmed on cEEG, not just that all subjects had epileptiform EEGs. Showing data regarding the time of EEG initiations and duration of recording would also be helpful to this end.

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?
If not, please explain in your comments to the authors.

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