Reviewer’s report

Title: Effect of different assumptions for brain water content on absolute measures of cerebral oxygenation determined by frequency-domain near-infrared spectroscopy in preterm infants: an observational study

Version: 1 Date: 26 April 2014

Reviewer: Eugene Dempsey

Reviewer’s report:

The aim of this study was to determine the effect of different assumptions for BWC on parameters of cerebral oxygenation in preterm infants. This is based on the fact that Brain-water content (BWC) decreases with maturation and will potentially affect parameters of cerebral oxygenation determined by (NIRS). The manuscript is well written. However there are a few areas that warrant further clarity.

Major Compulsory Revisions

1. A number of authors have presented longitudinal data over the first days and months of life in preterm infants. It is unlikely that the BWC would have changed significantly over this time period but no such clinical data is referenced. This is important and should be addressed in the context of the authors findings.

2. Page 5, background; ‘one has to expect that this maturational change in BWC will have an effect on readings of cerebral oxygenation determined by NIRS, which might be therapeutically relevant in the clinical setting.’ This is similar to point 1 above and the authors should expand upon how this might be clinically relevant.

3. The authors state ‘depending on postmenstrual and postnatal age most BWC-values will range between 80% and 90%’. This is not referenced and should be. If this is the actual case why chose the values that they have (85 and 95%) for this study?

4. Only 1 NIRS device is studied. There are a number of other devices currently in clinical use. Could the authors comment on how their findings might have reference to the other devices in clinical use?

Minor

1. There are a few typos and grammatical errors.

2. Table 2 has text associated with it. This should be omitted.

Could the authors define what ‘normal peripheral perfusion’ means?

3. There are very few differences in the median HHb values. Could the authors comment?
Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests