Reviewer's report

Title: Sleep, symptom ratings and serum ferritin levels in children with ADHD: a case control study

Version: 1 Date: 27 August 2013

Reviewer: Iris Rathwell

Reviewer's report:

Major Compulsory Revisions

1. In view of the data on sleep problems being collected only through parent questionnaires, it would be important and helpful to readers to state from early on (in the title and abstract) that these are 'parent-reported sleep problems'.

2. Background section (Page 3, third bottom line of paragraph): the authors state that one of the aims was 'to examine the effect of low serum ferritin levels on the sleep and symptom ratings'. However, what has been examined is whether there is a relationship/association and not the direction of such. I suggest the authors re-word this sentence.

3. Participants (Page 3, second bottol line of this paragraph): it is not clear whether the IQ index from Stanford Binet intelligence test was derived only for the ADHD group or all participants. It is also important to state whether the control group was screened for ADHD symptoms and how it was established that they were typically developed. This is particularly important given that relatives of the index group were also recruited as controls.

4. Statistical analysis (Page 6, third bottom line): the authors refer to 'qualitative variable'. What do they mean by it? If they mean 'categorical', it would be clearer to the reader if they consistently used the term 'categorical'. In addition, no reference has been made to whether the data subjected to correlations were normally distributed for parametric tests.

5. Results:

5.1 Sample characteristics: the IQ distribution in the samples should be presented clearly indicating the proportion of children with below average intelligence. In addition, the proportion of control subjects who were relatives of children with ADHD should also be reported as it may have implications for the results.

5.2 Sleep/wake patterns: the last sentence of this paragraph reports that there were no significant differences in total sleep duration (t=0.062, p = 0.951) whereas in the following paragraph (Comparisons of CSHQ scale scores) the authors report that there was marginal difference between groups in sleep duration subscale (p=0.056). The authors must clarify this discrepancy or better explain what they refer to.
5.3 The effect of ferritin levels on CPRS R:L subscale scores (Page 8, first paragraph): the authors must make it clear that they are referring to the cutoff ferritin level of 30ng/ml. Otherwise it is difficult to distinguish between this reporting and the following paragraph.

6. Discussion section (Page 9, second top line of first paragraph) - The authors state that they investigated the effect of low serum ferritin levels on sleep. However, they have only examined whether there was an association between these.

6.1 Further points for ‘discussion section’: whilst the authors point out that the clinic population may have recruited children with more severe ADHD, they do not present data on ADHD variables. Neither do they present data on IQ (mean, range) and proportion of below average IQ in this group which would be relevant for further discussion on the presence of sleep disturbance in children with intellectual disability. In addition, the authors do not discuss their control group in respect of how they ensured that these children were typically developed. The proportion of the control children who were relatives of those with ADHD is also important to know and consider when interpreting the results. The need to include a control group of children with only intellectual disability and/or other neurodevelopmental disorders in future design should be highlighted.

Minor Revisions:

1. page 4, first top line: ‘consultant child psychiatry’ should be 'consultant child psychiatrist'

**Level of interest:** An article of importance in its field

**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