Reviewer's report

Title: Comparative study of cognitive development in children with compensated hypothyroidism

Version: 1 Date: 26 January 2006

Reviewer: Lynne Levitsky

Reviewer's report:

General
1. Is the question posed by the authors new and well defined?
The authors examine whether mild compensated hypothyroidism can cause changes in neuropsychological function in children. This is an area which has not previously addressed carefully and is an excellent area for study because these children are seen so frequently. The identification of attentional deficits in these children parallel previous reports in more severely hypothyroid children and in the adult literature.

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?
The authors use a series of neuropsychological tests and compare them to previously reported norms. They study children, some of whom were congenitally deficient in thyroid hormone, and some of whom have acquired thyroid hormone deficiency. The age ranges vary widely. It is not clear that all the neurocognitive studies are appropriate for all the age ranges studied.

3. Are the data sound and well controlled?
The data seem to have been carefully obtained, but there is no control group. I similar studies, sibling controls have obviated the concern that there is a biased population.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
Yes

5. Are the discussion and conclusions well balanced and adequately supported by the data?
The presentation of data for such a small group of children (only 11) could have been more complete. It is not clear that the acquired hypothyroidism children were similar to the congenital hypothyroidism children. The lack of control group must be discussed. Children were taken off and on thyroid hormone, but the criteria for changing the thyroid hormone are not clear. It seems that retrospectively, the range of “normality” changed.

6. Do the title and abstract accurately convey what has been found?
yes

7. Is the writing acceptable?
Yes- minor wording changes would be reasonable
"off of thyroid hormone" should be changed to “off thyroid hormone.”

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. Address the issue of absent control group.

2. Describe differences between congenital and acquired hypothyroidism children, and any relationship to age at diagnosis

3. Statistical differences should be easily identified in the tables.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the
author can be trusted to correct)

see few linguistic changes above

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests