Reviewer's report

Title: Cognitive and psychosocial development of HIV pediatric patients receiving highly active anti-retroviral therapy: a case-control study

Version: 2 Date: 20 September 2010

Reviewer: Miriam Chernoff

Reviewer's report:

General comments:
The authors have responded to my previous comments and I thank them. There remain a few comments, which I believe will be needed prior to publication.

Discretionary:

1. Abstract. I believe the p-value associated with the Hyperactivity score comparison between HIV patients without encephalopathy and the Control group should be 0.009 (from Table 4). This would correspond to the value reported for Emotional symptoms, that is, the p-value for the Wilcoxon rank-sum test.

2. Methods, “Case Groups” and Table 2. I earlier requested reporting CD4% in addition to CD4 counts. Either they should describe the CD4% values separately from counts or delete them from Table 2, which, as it stands, is very confusing. Typically, these values are reported as the number and percent of participants with CD4% from 0-14%, 15-24%, 25% or more, as these relate to levels of immune suppression in children.

3. Methods, Statistical analysis and Results.

In two sets of instances, the authors use the Fisher’s exact test when they should preferentially use another test.

For example, in comparing Mother’s profession (Table 1) and Father’s profession (Table 1), they should be using the generalized Exact test. There should be just one p-value associated with each comparison of the different educational levels between HIV-infected and control groups (manual, employee, academic). Theoretically, if they find a statistically significant difference, they could explore the specific contrasts in more detail with the separate Fisher’s Exact tests. But I believe the reader will be confused by their current presentation.

In the comparison of CDC Stage, Viral load and CD4 Count, CD4% (all in Table 2), they should use the Wilcoxon rank-sum test and not the Fisher’s exact test, since these values are ordinal/ordered.

For more information, see SAS online documentation (for the PROCEDURE, “FREQ”; look under “Details” > “Statistical computations” > “Chi square tests and statistics”):

“Fisher’s exact test was extended to general R ×C tables by Freeman and Halton (1951), and this test is also known as the Freeman-Halton test. For R ×C tables,
the two-sided p-value is defined the same as it is for 2 × 2 tables. The set contains all tables with less than or equal to the probability of the observed table. A small p-value supports the alternative hypothesis of association between the row and column variables. For R × C tables, Fisher’s exact test is inherently two-sided. … For R × C tables, PROC FREQ computes Fisher’s exact test using the network algorithm of Mehta and Patel (1983), which provides a faster and more efficient solution than direct enumeration. See the section ”Exact Statistics” for more details.”

4. Results. 1st paragraph; It would seem to make more sense to express age in terms of years for this study population, rather than in terms of months. This also relates to Table 2.

5. Results. Tables 3 and 4 would be improved by including the counts and %s for the “Normal” levels of each of the tests.

Minor issues not for publication

1. Abstract, Methods. Included the word, “with” in the following sentence: “CNS imaging and clinical findings were used to identify patients with HIV-related encephalopathy”.

2. Methods, Statistical analysis. Normally, a significance cut-off is expressed as “less than” (i.e., “<”) rather than less than or equal.

3. In some instances, the authors refer to “HIV children” and in others to “HIV-infected children.” I think the term “children with HIV” would be preferable to “HIV children”. Perhaps the journal editors can help here.

4. Table 1. “Private education” is not referenced in the manuscript text. I find the entry confusing. The authors should either elaborate in the text or delete.

5. Discussion, paragraph 7, 1st sentence. I think it should read “In contrast, HIV-infected children with encephalopathy had an elevated frequency of … “. Again, the journal editor can help here.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.