Reviewer's report

Title: Prognostic Factors Related to Sequelae in Childhood Bacterial Meningitis: Data from the Meningitis Registry

Version: 3 Date: 8 June 2011

Reviewer: mariel mckenzie finucane

Reviewer's report:

Minor Essential Revision:

The authors now report the proportion of missing data for all univariate analyses. The same should be done for the multivariate analysis: please state clearly that this analysis is based on a <50% subset of the study population.

The authors write in their response:

"We appreciate the reviewer’s concern, however we consider that the subset of the total study population is a random subset as missing values were random and we do not have any identification that they were systematically created. To verify the representativeness of the proportion of subjects who had complete registries and were included in the logistic regression analysis we compared them with the subset of participants with missing values. We did not find any statistically significant difference on demographics factors sex (P=0.612), age (P=0.199), also in sequelae (P=0.673) and Period (P=0.755). Thus, we fully support that the subset is representative of the study population."

The fact that missingness is not associated with observed quantities (sex, age, sequelae, and period) does not suffice to demonstrate that the subset is representative of the population. The worry, rather, is that missingness is associated with the underlying unobserved quantities. For example, it seems plausible that doctors order blood cultures for those patients believed to have positive cultures and don’t order cultures for those patients believed to have negative cultures. If this were the case, then the subset of patients with observed blood culture data would not be representative of the population. Importantly, this bias would not be identifiable using the observed dataset.

I therefore find the last sentence of the manuscript misleading:

"Moreover, a possible limitation of the study is the percentage of missing values ranging from 0.4% to 35% in different variables. However, since we believe the missing values were not systematically created, the subset of data without missing values could be considered representative of the study population."

By the very definition of missingness, it is an untestable assumption that the subset of subjects without missing values is representative of the study population. This should be acknowledged as a weakness of the analysis.
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: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests