Reviewer's report

Title: Impact of antiretroviral treatment on height evolution of HIV infected children

Version: 0 Date: 27 Jun 2019

Reviewer: Rajeev Malhotra

Reviewer's report:

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The manuscript is well written and strengthen the effect of ART on height evolution of HIV infected children. My concerns are as follows.

1. Is there any difference between the baseline characteristics between those who completed the study and those who died, lost to follow-up and shifted to the other hospitals.

2. It would be better to explain model equation 1 with a practical real data of single child growth and explain how the HT can be predicted based on the model estimated parameters in the appendix. This would help the reader to understand the model in more effective way.

3. In Page 15 the author reported short length at birth (51.4 versus 54.2) but in supplement table 1 it is 51.4 versus 55.9 cm

4. Model need more explanation covering the following points:
   a. How the author derived the equation 1?
   b. How the phases were decided?
   c. Reason for choosing 50% time duration of HTa, HTb, HTc.
   d. The implication of b1, b2, b3 parameters estimated in the model(See Supplemental Table 1)
   e. Compare the non-linear mixed model with linear or quadratic time mixed effect models to show former is better fit.

5. It seems from Figure 2, individual parameters model provided better prediction than the population parameters. Has internal prediction power of these two was compared?

6. Author stated all children born with HIV were included it means all the children were perinatally infected. Endocrine disease effects the growth velocity apart from the HIV infection. Are these patients included or excluded.

7. Author reported no significance of age at ART initiation on final height but in model results author reported inverse association between height-growth velocity and age at ART initiation. The terms early ART initiation and age at initiation seems confusing and need clarification.

8. Report the proportion of stunting (z-score < -2 SD) at last follow-up visit those started ART <=6.2 years and > 6.2 years of age.
9. The authors may refer to a recent published study from India on effect of antiretroviral therapy on growth parameters of children with HIV infection in The paediatric Infectious Disease Journal

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

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