Reviewer's report

Title: High prevalence of lipoatrophy in pre-pubertal South African children on antiretroviral therapy: A cross-sectional study

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Reviewer: Thanyawee Puthanakit

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The authors have nicely presented data of prevalence and risk factors among HIV-infected children aged 3-12 years from South Africa. About one-third of population developed lipoatrophy, which is in line with several reports from European and Asian cohorts.

Major revision
There are several points that should be addressed as follow

Abstract
Result: the statement that “80% without lipoatrophy on stavudine” is not get along with the conclusion that stavudine should be phased out. The author should consider replace this statement with the finding that the odds ratio of developing lipoatrophy is 1.9 per year of stavudine use.

Background
The authors well described the situation of pediatric ARV program in South Africa and also the consequence of lipoatrophy on the antiretroviral therapy and also the well-being of the patients.
However, the authors should also add information from the literature about the relationship between stavudine and risk of lipoatrophy, and also mention the strength and limitation of lipoatrophy assessment tools e.g. clinical criteria, anthropometric measurement, DEXA scan.

Method
-No information of inclusion and exclusion criteria
-The clinical criteria of lipodystrophy; describe only grading criteria, but no information of site of assessment e.g. face, arms, legs, buttocks
-No information of how control were selected

Results
-No information of overall subject baseline characteristics
-Need more information about ARV use.esp. dosage of stavudine, switching criteria from stavudine to other NRTI. This is likely to explain the information in table 1 that only 19% of children who developed lipoatrophy had exposed to stavudine in the past 6 months comparing to 71% among children who did not develop lipoatrophy
- what is the agreement to diagnose lipoatrophy between 2 investigators, are there any discordant and how to handle it?
- table 2 and 3 please specify the p-value; is it the comparison between children with lipoatrophy and uninfected population.
- Since the anthropometric measurements and DEXA scan is more sensitive than clinical diagnosis. The data needed to convince the reader that clinical diagnosis is good enough assessment tool is the other way round. The author should explore how many children who had abnormal anthropometric measurement or DEXA were misclassified as no lipoatrophy.

Discussion

Second paragraph, the authors compared rate of lipoatrophy with several reports. Besides the difference in ethnicity, the author should also provide information on the difference in mean duration of ART use, the NRTIs backbone. Consider compare data with Asian cohorts which has similarities with African settings. E.g. children access to ARV treatment with advanced stage, underlying malnutrition, commonly used stavudine as a first –line ART

**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