Author’s response to reviews

Title: Impact of a pioneer diabetes camp experience on glycemic control among children and adolescents living with type 1 diabetes in sub Saharan Africa

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Response to Reviewer 1

METHODS

Q: 1) Lines 109-122: Please clarify whether information on campers (insulin doses, HbA1c, weight) was recorded by the campers or by the camp staff.

A: In the manuscript, we wrote (lines 120) information on each camper… was recorded by the camper with supervision of a member of camp staff.

Q: 2) Was any diabetes education provided to the campers during the 3- and 12-month follow-up visits? Please clarify what "routinely followed" (line 113) means.

A: We clarified the “routinely followed”, by adding three sentences (line 87-92), describing the follow- up of all children enrolled in the CDiC project. Group education session is organized every three months in all CDiC clinics. So, diabetes education was provided to the campers during the 3-and 12-months follow-up visits.

Q: 3) It is unclear from the methods description whether 32 campers included in the study came to the 3rd and the 12th month of follow-up or whether different number of campers
were included in the 3rd and 12th month of follow-up. Please provide the N's for how many campers came to each, either, or both follow-up visits.

A: We included in this study, only campers who came at the 3rd and 12th month follow-up after camp, and their total number was 32. The number of campers who came back at 3rd month follow-up after camp was 38 [six of this group either did not come at 12-month visit, or came so late (> 1 month after their schedule visit) and was excluded from the final analysis]. To correct the misunderstanding, we wrote “only the 32 who came for both 3 and 12 months’ follow-up visits were included in further analyses” (line 123-124).

Q: 4) Did you collect data on height? It is hard to make conclusions about the increase in weight at 12 months without having information on height. Kids grow rapidly at these ages. BMI would be more appropriate, but providing data on both weight and height may be sufficient.

A: In the medical record of all children enrolled in the project, height is supposed to be taken during each quarterly visit by nurses. Unfortunately, this information was not available for many campers. Therefore, it is not possible to provide information concerning height and BMI. We do recognize that it would have been helpful and have acknowledged this in the discussion (lines 223-225).

Q: 5) Z test for two proportions assume independence between samples. Using this test to compare good glycemic between the beginning and the end of camp (Table 2) is not appropriate.

A: We totally agree with the reviewer. In fact, we made a mistake. We wanted to say that we used Mc Nemar test for comparison of proportions of paired data. We proceeded to changes in line 134.

Q: 6) Line 127: The level of significance is alpha, not a p-value.

A: We agree with the reviewer and we rephrase the sentence as follows: A Pp-value < 0.05 was used to characterize statistically significant results (Line 138-139).

RESULTS

Q: Line 140-141. It is very good that you examined differences between the 14 campers who didn't participate in the follow-up visits and the 32 who did. However, adding a sentence or two about in what regards these two groups of campers did not differ (e.g. age, HbA1c, diabetes duration, etc.) would strengthen your point.

A: We have included details regarding aspects of similarity between the two groups. (line: 154-156)

A: Table 1
As recommended by the reviewer, we changed the title of the table to match with the content (baseline characteristics, and median number of visits at clinic and capillary blood glucose/day 3 months after camp).

Q: Table 2

How did your account for making multiple comparisons? This is very important to discuss in your statistical analysis. Were multiple comparisons planned or unplanned?

A: We did plan for multiple comparison since the camp was not designed for a study. We wanted to share some observations from the camp. This has been clarified in the statistical analysis section.

Q: Did you consider making adjustments for multiple comparisons such as Bonferroni?

A: Multiple comparisons such as Bonferroni are conservative and might end up losing power or part of the information with this small sample size. Instead, we found it necessary to simply compare each time period to the beginning of camp using a paired t test. Results are presented in table 2.

Q: Given that you show that certain variables are significantly associated with HbA1c levels at 3 months (Table 3), it is important to adjust for these variables in the ANOVA analysis to show whether it is the camp that affected the change in HbA1c or other participant characteristics. Have you done any multivariable analysis? Your main results could be confounded by diabetes duration, baseline HbA1c level, number of clinic visits, number of glycaemia days, etc.

A: We acknowledge the fact that without any adjustment it will be impossible for us to conclude that the camp is responsible for the change in glycemic control. However, the variables on table 3 did not pass some of the major assumptions (normal distribution, linear association with the outcome of interest) to be used as confounders in very highly demanding methods such as ANOVA. Moreover, we want to raise this point as one strong limit of our paper, since the data was not planned from the beginning to be use for a publication. In addition, the limited population size does allow only limited multivariate analysis.

Q: I would highly recommend adjusting for at least a couple of most important variables. Given your small N, you are probably not going to be able to adjust for all of them. Please add Ns to each column of Table 2

A: See answer above.

Q: Table 3.

I would suggest adding a column to this table to show which variables were associated with HbA1c levels at 12 months as well. And add total N at the top of the Table
A: We did not deem this necessary contrary to the recommendation of the reviewer to add a column to Table 3 to show variables associated with HbA1c levels at 12 months because of missing data. Information concerning the number of visits at the clinic and the number of glycaemias/day were not available for the majority of campers.

DISCUSSIONS

Q: 1) Line 205: How did you handle the participant with HbA1c > 14% in your analysis? What value did you enter for him/her (14? 14.1?)? This is important to add in the statistical analysis section

A: For participant with HbA1c > 14%, the value we entered was 14%.

Q: 2) Line 212: What are the "key messages." Please be specific.

A:

CONCLUSION

1) Camps can have a positive and lasting metabolic impact on glycemic control in young patients living with type 1 diabetes in sub-Saharan Africa.

2) The increase in the frequency of hypoglycemia recorded at the beginning of the camp should lead to the systematic reduction of insulin doses on arrival at camp, especially in well-controlled campers.

Response to Reviewer 2

Q: What were the reasons for hypoglycemia during camp? Increase physical activity or alteration in insulin dose or dietary factors? Please specify.

A: We discussed the reasons for hypoglycemia during camp in the text (Line 203-205: “This was probably related to the increase in physical activity and the healthier dietary measures adapted to the nutritional needs of each camper while maintaining the pre-camp insulin doses”). Increase in physical activity of campers and healthier diet are certain. However, we should admit that the influence of diet was difficult to evaluate, since carbohydrate count was not done before and during camp. Many campers admitted to eating more probably because of the better quality and quantity of food served at camp compared to their home.

Q: How would you explain the increase in weight while simultaneously insulin dose is being reduced?

A: We wrote (Line 42-43): “weight increased by 6 kg (p=0.028) between 3 and 12 months after camp, but not insulin doses”. Increase in weight could be due to the normal
growth of campers. Improvement of A1c without increase in insulin doses could be explained by an increase in physical activity and a healthier diet after camp.

Q: HBA1C depends on many factors. How can you conclude that reduction in HBA1C was due to the impact of camp? Were the confounding factors controlled.

A: During discussion (Line 188-199), we tried to demonstrate that the reduction observed in HBA1c was not due to the impact of camp alone.

Q: What type of diet was used during the camp? Was it similar for all the children?

A: The type of diet used during camp was high fibers, high protein, moderate carbohydrate and less fat. It was similar for all children, but portion sizes varied based on individual characteristics.