Author's response to reviews

Title: Cross-sectional study of hepatitis B virus infection in rural communities, Central African Republic

Authors:

Narcisse P Komas (npkomas@yahoo.fr)
Ulrich Vickos (vickos.ulrich@gmx.com)
Judith M Hübschen (judith.huebschen@crp-sante.lu)
Aubin Béré (berostau@yahoo.fr)
Alexandre Manirakiza (amanirak@yahoo.fr)
Claude P Muller (Claude.Muller@crp-sante.lu)
Alain Le Faou (alainlefaou@univ-lorraine.fr)

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Author's response to reviews:

Dear Editor,

We are grateful to the reviewers who accepted to revise our manuscript. Please find below our responses to the comments and suggestions about this manuscript, MS: 1593046211922741.

Editorial Comments

A) Important amendments

1) The need to expand on the sampling methodology (which is currently briefly discussed in the discussion but should be moved to the methods section and given more detail, then referred to in the discussion to give weight to the idea that the study is representative of these rural regions)

Response: We included more information about the sampling methodology in the methods section as suggested.

2) Clarify table 2: I would suggest that you delete table 1 (the ?HBc antibody only? result is unclear and you talk about most results in the text already) and include all relevant results in the text, whilst expanding table 2. Table 2 needs the n pos, % pos, which you have but also the n total for each age group and sex and a total column and row. The number of decimal points for the % is also inconsistent.

Response: In order to make our results more clear, we deleted Table 1 as suggested by the Editor and expanded Table 2 by including the number of HBV positives in relation to age and sex and in total. All percentages are now given with one position after decimal point.

3) A Table listing the comparison of variables with HBV status would be useful

Response: As suggested by the Editor, Table 2 presents the risk factors
assessed in this study.

B) Minor issues

1) The authors refer to two previous studies (references 13 and 14, but don’t discuss these at all as to why their study is an improvement or how the results compare
Response: In the discussion section, we now discuss our results in comparison to references 13 and 14.

2) First use of HBV requires spelling out in the first sentence
Response: We have now defined the abbreviation at first appearance in the text as requested.

3) Results: do the authors mean p<0.03 or p=0.03, perhaps give the exact p value here
Response: We have now clarified this issue by writing p = 0.03.

4) Discussion first parag: include the % pos for each of the studies referred to
Response: As suggested by the Editor, we have included the % of HBV positives for each of the studies mentioned.

5) Discussion third parag: suggest rename ?isolated cases? to Individuals positive for HBcAb who were negative for HBaAg
Response: We have changed the expression.

Editorial request

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Response: We used the assistance of Elizabeth Heseltine, who is English native and is a professional Editor. She revised the manuscript.

Abstract: please format your abstract according to the guidelines for authors http://www.biomedcentral.com/info/ifora/abstracts. Potential referees will be asked to review the manuscript having seen only the title and abstract, so it is important that these are both informative and concise.

Response: We formatted the abstract according to the journal guidelines for authors.
Reviewer: Cyrille Bisseye

Specific comments

1) Close contact is listed as the most common route of infection. Sexual transmission which is thought to occur especially in the age group 20-40 is not mentioned. The authors should verify their sources
Response: Verification and appropriate corrections were done.

2) The word “Recently” is used to discuss the latest genotypes found; Source 7 is not recent, as it is from 1973
Response: We agree with the reviewer and have now changed the sentence and included the appropriate reference.

3) HBV genotypes E found in CAR were compared to those from west and east Africa; the authors could also align their sequences with those from Cameroon and Gabon two neighboring regional countries
Response: We have now included sequences from Cameroon in the alignments and the phylogenetic trees. No genotype E sequences from Gabon covering the regions of the HBV genome used for phylogenetic analysis in the present study were found on GenBank.

Reviewer: Josephine Bwogi

A) Title
1. Discretionary revision: The title needs to be changed to show what has been studied and reported on. As it stands, it would seem as if the authors only studied the hepatitis B virus yet they also studied the Hepatitis B virus infection. I would propose change to read Cross-section study of Hepatitis B virus infection.... or another title to encompass the comments above
Response: We modified the title according to the suggestion of the reviewer.

B) Methods
Study population
2. Discretionary revision: Page 3. The description of the study populations’ sex and age could be shifted to the results section
Response: According to the reviewer’s suggestion we shifted the study populations’ sex and age distribution to the results section.

3. Major compulsory revisions: There is a need to describe how the authors came up with the sample size of 273 and also describe how the 273 healthy individuals were selected for study
Response: As suggested we have added information about the sample size to the methods section and explained how the donor selection was done.

4. Discretionary revision: Page 4 serological tests: There is need for
reorganisation of statements in this section for better flow of information. Statement 2 could be no 1, followed by statement 1, then statement 3.
Response: We reorganized the statements in this section as suggested by the reviewer.

5. Major compulsory revision: Page 4 Clarify on what was used for DNA extraction, was it the elutes from the DBS as stated in the abstract or DBS
Response: We have clarified now in the abstract that the DNA extraction was done directly on the dried blood spots.

Statistical analysis
6. Discretionary revisions: Page 5. Could expand on what was assessed for significance.
Response: We better clarified what data were assessed for significance.

C) Results
7. Discretionary revisions: Page 5. Provide interpretation of the anti-HBc antibodies tests
Response: We added a comment about the significance of anti-HBc positivity.

8. Minor essential revisions: Page 13. Table 1 last line in table, Use HBc instead of Hbc
Response: We deleted Table 1 as suggested by the Editor.

9. Discretionary revisions: Page 14. Table 2 is not clear. Change presentation for clarity
Response: The presentation of Table 1 (formerly Table 2) has been changed. We now present HBV positivity in relation to age and sex and overall.

10. Major compulsory revisions: I propose addition of a table showing how the different risk factors studied relate to HBV positivity.
Response: We have added a Table which is now Table 2 showing the link between HBV positivity and different risk factors studied.

D) Discussion
11. Major compulsory revision: Page 7, paragraph The authors discuss the literacy and social profiles group but these were not described in the results section. There is a need to describe these in the results section.
Response: We took into account the reviewer’s suggestion and have described these groups in the results section and show the data in Table 2.

12. Discretionary revision: Is there any explanation for the higher prevalence of HBV observed in Ouaka?
Response: Although the HBsAg prevalence seems to be higher in Ouaka prefecture, there is no statistical difference between this prevalence in Ouaka prefecture compared to the three other locations. This may be due to the limited
number of total and positive samples. The analysis of the risk factors of HBV positivity in Ouaka prefecture did not show any particularity (Table below).

HBsAg positive repartition according to risk factors in 48 participants from Ouaka prefecture

Variables n positive %HBV+

Marital status
- Male
  - Married monogamy 1 2.1
  - Single 0 0.0
  - Married polygamy 2 4.2
- Female
  - Married monogamy 2 4.2
  - Single 2 4.2
  - Married polygamy 2 4.2

Years since first sexual intercourse
- # 1 2.1
- 11 – 20 0
- 21 – 30 3 6.2
- > 30 5 10.4

Use of Condoms
- Yes 5 10.4
- No 4 8.3

Number of sexual partners
- One 6 12.5
- Two or more 3

Socio-professional activity
- Civil servant 0 0.0
- Small Traders 3 6.2
- Farmer 3 6.2
- Students 1 2.1
- Unemployed person 2 4.2
- Others* 0 0.0

Antecedent risk behavior
- No risk 2 4.2
- Scarification 4 8.3
- Surgery 2 4.2
- Blood transfusion 0 0.0
- Tattooing 5 10.4
- Dental surgery 2 4.2