Author’s response to reviews

Title: Prevalence and risk factors of hepatitis B and C virus infections among the general population and blood donors in Morocco

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Author's response to reviews: see over
Dear Editor,

Thank you for your thoughtful review of our manuscript. We take your concerns seriously and have addressed them to the best our abilities. Below, we would like to outline our responses to the comments.

The study is an important one and the manuscript is improved. The additional description of the sampling methodology is helpful but further information is necessary. Please note the following issues:

1. Abstract (results): By “The HBV positivity was significantly more important”, do you mean to say “The HBV prevalence was higher”? Why is it more important? Keep in mind that the results section is for reporting results, not drawing conclusions.

   Abstract (results): Please separate the two unrelated points, “Two patients carried both viruses and HCV-RNA was detected by PCR in 70.9% of the 195 anti-HCV positive subjects,” into two separate sentences.

   Abstract (results): What is meant by “none of them had HBV nor HCV markers”? Do you mean to say, “None of the <N> persons younger than 20 years had HBsAg or anti-HCV”? If so, please indicate the denominators and separate this into a separate sentence from the previous point.

   Abstract (results): What is meant by “The HCV infection among the general population was mainly associated with nosocomial transmission.” Keep in mind that the results section is for reporting results, not drawing conclusions. Do you mean to say, “HCV infection in the general population survey was associated with nosocomial exposures”?

   Abstract (conclusions): If you want to conclude that the prevalences of anti-HCV in elderly subjects and HBsAg among men were high then you should present these prevalences in the results section.
We have reworked the results and conclusion sections of the abstract to make it clearer (we hope!). All the suggested edits have been made.

2. **Background:** Please change “referral bias” to “selection bias.” “Referral bias” refers to selective referral of sicker or more complicated patients to specialists. It is a type of selection bias. The studies referred to here may be subject to selection bias but not referral bias.

   We wholeheartedly agree with this comment. We made the correction as suggested.

3. **Please use the word “persons” instead of “patients” to describe the subjects in your study.**

   We have corrected this error.

4. **Please clarify that the first 17 691 persons recruited in your cross-sectional survey were tested for anti-HCV and not HBsAg, and the subsequent 23 578 persons were tested for both anti-HCV and HBsAg.**

   Changes were made as suggested. The information is added in the 3rd paragraph of the method section.

5. **Methods:** What was the purpose of the nationwide cross-sectional survey conducted by the Pasteur Institute of Morocco? Did it have a name? Have the survey methods or findings been published or has the study been described anywhere?

   Because the most studies carried out in our country were limited to risk groups or blood donors, our main objective was to conduct an extensive study concerning the apparently healthy persons in different regions of the country in order to determine the HBV and HCV prevalence and risk factors associated which is important to establish prevention strategies. This is cited in the last paragraph of the Background section.

   This survey was enrolled in the large screening program for hepatitis B and C, which falls within the national program for prevention of viral hepatitis. We have edited the first sentence in the method section (Study design, setting and population, general population).
As we mentioned in the cover letter of the first submission of the paper, our team (sbai et al.) has published earlier preliminary data about the prevalence and risk factor of HBV in French language. In the present complete study, we increased the number of patients screened from other regions and we are reporting a different rate of HBV infection than the first data published (1.81% vs. 1.6%). Moreover, other risk factors were found to have an association with infection, such as age, gender, dental therapy and history of jaundice. This information is added in the 8th paragraph on the discussion section.

6. Methods: How were the names of the private and public organizations obtained? Please provide more detail on how the list of organizations was compiled and what organizations were on it. How many organizations were on the list? How was the random sample generated from the list? How many organizations from the list were selected to participate, and how many of these agreed to participate?

We have worked hard to increase the clarity of this part of methods section based on the careful and thoughtful reviews. You will have to judge how well we succeeded.

The list of organizations was obtained using directories. We studied the regions one by one; therefore the generated list of each of them differs from one to another due to the size of each of them and if it’s more populated. Each list was compiled by excel tool. On the whole 280 organisms accepted to participate out of 288.

7. Methods: If the cross-sectional survey was carried out in fifteen major Moroccan cities, is it fair to say that it is a study of the urban population, rather than the general population, of Morocco?

8. Please comment on the nature of the sample based on the selection methods. If the study-sampled persons in places of education and employment in urban centers, would it have undersampled or excluded persons who were unemployed, self-employed, homeless, poor, unhealthy, or disabled? Persons of lower socioeconomic status? Persons who worked for small or informal businesses? Persons who worked in agriculture? Persons who lived in rural areas? Women? Was it largely a study of middle class Moroccans?
We believe that the term “cities” has sown seeds of confusion. To streamline the text and make it clear, we think that it will be more interesting to use the new administrative division of Morocco and change the word “city” by “region” (which could means city and it’s extension or many small nearby cities) this is more helpful. Indeed, the present study does not single out the urban population; and we think that we cannot exclude a category of the population and this, for various reasons; firstly, because the study was open for all persons who wish to participate (all socioeconomic status). Also we should take into account the phenomenon of urbanization, which increases year on year in our country and so, people from rural areas are well represented. Moreover some selected factories were installed outside of cities then recruits the rural population and some of participants have even suggested their families. Besides certain selected schools were in the rural area.

9. Methods: How many people were selected and approached for participation, and how many of these did not participate?

Regarding persons, who have been selected for participation, forty-two of them didn’t agree to participate in the study. On the contrary, this study was successful; many people have just heard of this study and came to ask to participate and as we attempted to estimate the hepatitis prevalence in the general population, they were included in the survey.

10. Please clarify in the title to Table 1 that it refers to the survey of the general population (or urban population) of Morocco, and include the years of the survey.

The suggested edit has been made.


In the discussion section, we have expanded the second paragraph to cite the result reported by Cacoub et al. we also added a paragraph (8th) to discuss previous results
reported concerning hepatitis B particularly those of the WHO, Zahraoui-Mehadji et al. and Sbai et al.

We appreciate your careful evaluation of our work and hope that this revision meets with your approval.

Thanks again for your interest in our work. We await your review of our revised manuscript.

Sincerely yours,