OPEN PEER REVIEW

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As a new feature for progressing towards transparency, we decided to open a new window for all of our editors as well as authors titled "**Open Peer Review**". We hope by this new facility, our reviewers will be more motivated and authors will be more satisfied with the review process. We believe that publishing our peer review reports could make a transparent and clear environment for all our efforts within a journal, but not all reviewers tend to publish their comments.

What is "Open Peer Review" process?

An "Open Peer Review" process is making the details of all review process (including reviewers, associate editors, and EICs comments) as "Public" as it is agreed by EIC, Authors, and reviewers.

Advantages of "Open Peer Review" process

- More transparency, constructiveness and tactful comments of the peer review process: leads to an increase in the quality of reviews
- More motivations for all involved roles in the review process
- Authors' satisfactions from the review process: Increases honesty between authors and reviewers
- Education of both authors and new students
- Prevents reviewers from following their individual agendas and leading to the detection of reviewers' conflicts of interests

You can find out more at:
https://brieflands.com/briefland/knowledgebase/category/tree.html#opr.html

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Peer Review Report for "Post-vaccination Immunity Against Hepatitis B Among Mongolian Adolescents and Youths"

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Submit Date: 27 Nov 2021
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Revision (0)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (0) 14 Dec 2021

Dear associate editor

We would like to thank Authors for presenting a comprehensive paper and has been written and submitted in a good manner and quality of presentation.

REFEREE: Reviewer | **Revision** (0) 16 Feb 2022

Hello,

1. Include study time in the abstract.
2. Briefly, in the abstract of the article, mention the method of details of the test.
3. In the abstract of the article, mention the number of doses of hepatitis vaccine in childhood.
4. In the introduction, refer to the schedule and times of hepatitis vaccine injection in

children in the country.
5. Explain the sample size, and the sampling method in more detail in the method section.
6. Give the definitions of the other most important variables that you have studied in the method.
7. Did you collect vaccination history based on questions and self-report from people or based on registration history?
8. What has been your rule for classifying immunity against the disease?
9. In the discussion section, compare the prevalence of hepatitis B in this age group with the pre-vaccination periods in the country.
10. Given that booster dose is not recommended for hepatitis B, what is the reason for your insistence on injecting booster dose?
11. In Table 1 in the last row, specify that the percentages in the row are calculated.
12. In Table 2, explain why there are differences in different areas in the country in the discussion section.

Thanks

REFEREE: Reviewer | **Revision** (0) 23 Feb 2022

Editor,

The study evaluated the efficacy of the HBV vaccine among Mongolian adolescents and youth. The study is valuable as it is the first national study of its kind done in Mongolia. Moreover, previous studies in different countries showed similar results.
There are some points throughout the article which should be further explained:
In line 122: Among adolescents and young adults aged 10-14, 15-19, 20-24, and 25-27 years, HBV infection was found in 3.9%, 2.7%, 6.4%, and 11.2%, respectively (Table 2); this sentence should be clarified in the text and the table, too.
In line 146, “Vaccine-induced immunity to HBV was determined using anti-HBs levels, and this revealed that a large proportion of the study participants were at risk of HBV infection and liver disease”. The sentence does not make sense, previous studies showed that protection from clinical disease occurs even in the setting of declining or undetectable anti-HBs levels, due to the priming of memory cells, which elicit an anamnestic response when challenged. Also, cellular immunity has been long-lasting.
Consider this concept in your article: In most countries, a booster dose of the single-antigen vaccine is not routinely recommended for immunocompetent children and adults who have responded to a complete vaccine series, although with patients on hemodialysis, and immunocompromised persons with ongoing risk for exposure, booster doses should be administered if the antibody level declines to <10 international units/ml.
The words were used throughout the article should be written correctly, for example, “humoral immune memory for HBsAg” which should be changed to HBV infection.
In the conclusion part, there is no need to mention the percentage and numbers which were mentioned in the results. Just the main result and suggestion should be enough here.
State the complete forms of all abbreviations, for example, HBsAg.
The article should be written in a more organized manner.

Thanks

REFEREE: Associate Editor | **Revision** (0) 24 Feb 2022

EIC,

According to the comments of reviewers, I would suggest a minor revision.

Regards

Seyed Moayed Alavian: EIC | **Revision** (0) 24 Feb 2022

Dear Authors

Thank you for your submission. Please follow the peer-review comments and submit a revision.

Regards,
EIC

OPEN PEER REVIEW

Revision (1)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

Response to Reviewer 1 Comments

Point 1: We would like to thank Authors for presenting a comprehensive paper and has been written and submitted in a good manner and quality of presentation.

Response 1: We are grateful for the comment.

Response to Reviewer 2 Comments

Point 1: The study evaluated the efficacy of the HBV vaccine among Mongolian adolescents and youth. The study is valuable as it is the first national study of its kind done in Mongolia. Moreover, previous studies in different countries showed similar results. There are some points throughout the article which should be further explained.
In line 122: Among adolescents and young adults aged 10-14, 15-19, 20-24, 25-27 years, HBV infection was found in 3.9%, 2.7%, 6.4%, and 11.2% respectively (Table 2); this sentence should be clarified in the text and the table too.

Response 1: We thank you for your comment. As recommended, the sentence was described more in the discussion section (line 517) and was added to now Table 3.

Point 2: In line 146, "Vaccine-induced immunity to HBV was determined using anti-HBs levels, and this revealed that a large proportion of the study participants were at risk of HBV infection and liver disease". The sentence does not make sense, previous studies showed that protection from clinical disease occurs even in the setting of declining or undetectable anti-HBs levels, due to priming of memory cells, which elicit an anamnestic response when challenged. Also, cellular immunity has been long-lasting.

Response 2: You have raised an essential point here. We rewrote the sentence to "Vaccine-induced immunity to HBV was determined using anti-HBs levels, and this revealed that a large proportion of the study participants had <10 mIU/mL, or below the recommended protective level." (line 547)

Point 3: Consider this concept in your article: In most countries, a booster dose of the single-antigen vaccine is not routinely recommended for immunocompetent children and adults who have responded to a complete vaccine series, although with patients on hemodialysis, and immunocompromised persons with ongoing risk for exposure, booster doses should be administered if the antibody level declines to <10 international units/ml.

Response 3: Thank you for suggesting an important concept that improves our paper. We added the following sentence after describing the WHO recommendation, "In addition, people who are immunocompromised, with chronic renal failure, HIV/AIDS, or undergoing hemodialysis are recommended to receive a booster dose when anti-HBs levels are below 10 mIU/mL as they are predisposed to slower immune response (33)." A reference was added too.

Point 4: The words were used throughout the article should be written correctly, for example, “humoral immune memory for HBsAg” which should be changed to HBV infection.

Response 4: We agree with this point and have incorporated the suggestion throughout the manuscript.

Point 5: In the conclusion part, there is no need to mention the percentage and numbers which were mentioned in the results. Just the main result and suggestion should be enough here.

Response 5: Thank you for pointing this out. We have modified the conclusion part accordingly: “Since the introduction of the national hepatitis B immunization program in Mongolia in 1991, a small proportion of the population had intact immune memory. Immunity to HBV infection and geometric mean concentration of anti-HBs after primary vaccination decreased in an age-dependent manner while HBsAg seroprevalence increased. The findings implicate the need to implement an HBV infection booster vaccination program or long-term HBsAg monitoring to detect HBV infection carrier status in adolescents and young adults. Further studies investigating breakthrough infections and causes of reduced efficacy in vaccinated individuals, as well as the prevalence of HBV infection in the unvaccinated population in Mongolia are recommended.”

Point 6: State the complete forms of all abbreviations, for example, HBsAg.

Response 6: We have included a list of all abbreviations as suggested.

Point 7: The article should be written in a more organized manner.

Response 7: Thank you for this suggestion. We revised the manuscript and hope it is more organized now.

Response to Reviewer 3 Comments

Point 1: Include study time in the abstract.

Response 1: Thank you for the recommendation. We have included the study time in the abstract.

Point 2: Briefly, in the abstract of the article, mention the method of details of the test.

Response 2: We have included more information on the test in the abstract (line 15).

Point 3: In the abstract of the article, mention the number of doses of hepatitis vaccine in childhood.

Response 3: Thank you for the suggestion. We have mentioned the number of doses of hepatitis vaccine in childhood (line 13).

Point 4: In the introduction, refer to the schedule and times of hepatitis vaccine injection in children in the country.

Response 4: We have included the reference of the hepatitis vaccine schedule and times in Mongolia as recommended (line 113).

Point 5: Explain the sample size, and the sampling method in more detail in the method section.

Response 5: We have added detailed information about the sample size and the sampling method in the method section (line 143).

Point 6: Give the definitions of the other most important variables that you have studied in the method section.

Response 6: We have included the definitions of the important variables studied in the method section as suggested (line 380).

Point 7: Did you collect vaccination history based on questions and self-report from people or based on registration history?

Response 7: We collected vaccination history from official records or the registry in the Immunization Department of the National Center of Communicable Diseases. The registry includes vaccine brand name, type, manufacturing country and company, dose, and coverage. This is described in line 361.

Point 8: What has been your rule for classifying immunity against the disease?

Response 8: The basic rule for classifying immunity against the disease has been added in a table format (Table 1) and described in the method section (line 383).

Point 9: In the discussion section, compare the prevalence of hepatitis B in this age group with the pre-vaccination periods in the country.

Response 9: Thank you for the recommendation. The comparison of hepatitis B prevalence in this study and the pre-vaccination period have been compared and written in line 538.

Point 10: Given that booster dose is not recommended for hepatitis B, what is the reason for your insistence on injecting booster dose?

Response 10: Although a booster dose is not recommended for hepatitis B, several studies have determined that the antibody levels decline with increasing age after vaccination, which could lead to a higher risk of infection.[1-2] Moreover, vaccination failures may occur in some instances, particularly in the harsh winter conditions of Mongolia. It was reported that the cold weather affected vaccine quality and efficacy during transportation, especially to rural areas.[3] In addition, about 20% of neonatal HBV vaccines develop an inadequate response, and 5% still acquire HBV

infections later in life.[4-7] This vaccination failure may be due to an immature immune system of the neonate. High-risk groups such as immunocompromised individuals or healthcare workers may need a booster vaccination. Here are the relevant references:

1. Ze WY. Practice on planned immunology In: Diao LD, ed. Planned Immunology. 2nd edition Shanghai: Science and technology literature press; 2001, 29-65.
2. Hsu HY, Chang MH, Liaw SH, Ni YH, Chen HL. Changes of hepatitis B surface antigen variants in carrier children before and after universal vaccination in Taiwan. Hepatology 1999; 30:1312-7; http://dx.doi.org/10.1002/hep.510300511
3. Davaalkham D, Ojima T, Wiersma S, et al. Administration of hepatitis B vaccine in winter as a significant predictor of the poor effectiveness of vaccination in rural Mongolia: evidence from a nationwide survey. J Epidemiol Community Health. 2007;61(7):578-584. doi:10.1136/jech.2006.051375
4. Kato H, Nakata K, Hamasaki K, Hida D, Ishikawa H, Aritomi T, Nakao K, Kato Y, Yano M, Eguchi K. Long-term efficacy of immunization against hepatitis B virus in infants at high-risk analyzed by polymerase chain reaction. Vaccine 1999; 18:581-7; http://dx.doi.org/10.1016/S0264-410X(99)00320-5
5. Chathuranga LS, Noordeen F, Abeykoon AM. Immune response to hepatitis B vaccine in a group of health care workers in Sri Lanka. Int J Infect Dis 2013; 17:e1078-9; http://dx.doi.org/10.1016/j.ijid.2013.04.009
6. Su FH, Cheng SH, Li CY, Chen JD, Hsiao CY, Chien CC, Yang YC, Hung HH, Chu FY. Hepatitis B seroprevalence and anamnestic response amongst Taiwanese young adults with full vaccination in infancy, 20 years subsequent to national hepatitis B vaccination. Vaccine 2007; 25:8085-90; PMID:17920732; http://dx.doi.org/10.1016/j.vaccine.2007.09.013

Point 11: In Table 1, in the last row, specify that the percentages in the row are calculated.

Response 11: Thank you for pointing this out. We have specified that the percentages in the row are calculated.

Point 12: In Table 2, explain why there are differences in different areas in the country in the discussion section.

Response 12: We have added the suggested content into the manuscript in line 548.

OPEN PEER REVIEW

Revision (1)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (1) 10 Apr 2022

Dear editor,

I think the paper is suitable for publication in the journal now.

Yours

REFEREE: Reviewer | **Revision** (1) 16 Apr 2022

The authors made the requested changes.

Thanks

REFEREE: Associate Editor | **Revision** (1) 17 Apr 2022

Dear EIC

According the comments of reviewers and improvement of the text, this manuscript is publishable now.

Thanks

Seyed Moayed Alavian: EIC | **Revision** (1) 17 Apr 2022

Dear Authors,

I am delighted to inform that your manuscript is accepted for publication in Hepatitis Monthly journal.

Regards
EIC