Vaccines -1544304

Thank you note

Thank you once again for improving our work, and we assure you that we have made every effort to improve the work and take into account all the detailed amendments that we were able to change to the final version of the manuscript.

Authors

REVIEWER 2

> Estimated Authors of the paper
>
> "Systemic COVID-19 vaccination also enhances the humoral immune response after SARS CoV-2 infection in the population of an oncology hospital in Poland. Criteria for COVID-19 re-immunization are needed"
>
> I've read with interest your revised version.
>
> Unfortunately, Authors have not substantially replied to my previous concerns regarding methodological issues - but none of them has been addressed.
>
> For example: **regarding sample size**, Authors write: "
>
> We agree with the suggestions. In future work, we will follow the recommended tips. We plan to cover the entire year of 2021, when field vaccinations were carried out in hospitals for cancer patients and employees. We have over 4,000 samples." I'm confident you will be able to publish your report in a highly impacted journal, but we're dealing with the present study and its limits. Therefore this issue remains unsolved.

Authors answer:

The answer to 1 clue was quite extensive and seemed satisfactory to all of us, the paper's authors. If you did not receive the response, we apologize.

We are in a hurry with a shorter answer, perhaps more reflecting the selection of people for our sample.

Regarding *sample size* we wrote: "*Our studies were conducted in an oncology hospital with volunteers taking antibody measurements, usually before and after vaccination. Qualification for measurements was made based on available advice, and it is estimated that over 60% were former patients. Approximately 40% are medical and non-medical personnel who also had access to research. Retrospectively, we searched for people with humoral immunity after infection with SARS CoV-2, and when vaccines appeared, we observed different humoral*

responses of IgM and IgG levels, trying to respond to which asymptomatic patients have elevated antibodies(…)"

> Similarly, the point about the sample characteristics remains unsolved ("...
>
> We performed the characteristics of the research groups retrospectively on the basis of medical history and vaccination. We did not select patients into groups based on their illness, duration of treatment, or recovery from illness. We did not plan such a selection. In our future work, we will select clinical groups from 4,000 subjects.").

I am so sorry that I did not understand what *sample size* could mean. As far as selecting the sample, material, and research methodology is concerned, I would like to emphasize that the selection of patients and their criteria for taking antibodies was not performed. Each oncologist had a free choice to refer a person for examination. We retrospectively assessed the population of people surveyed in a given period. We did not limit groups to 100 people, for example. Apart from 3 people rejected by Prof. Anna Stasiak-Barmuta from a group of 1063 participants, we did not make any other rejections.

Are these suggestions that we should leave people by distributing our study groups equally? Please explain this matter.

As for the first review, I still would like to know what do you mean about your suggestion.

1. The groups are of strikingly different size. As a consequence, statistical analyses are of doubtful significance when dealing with vaccines other than COMIRNATY. I warmly recommend to adjust your analyses by taking in account only not-vaccinated vs. comirnaty.

An unvaccinated group is a group consisting of a control group (G0), a group with a humoral response selected from the control group (G01), and a group of people with COVID-19 (G1) (RT PCR positive). They are all unvaccinated.

A comparison of group G0 with G2 (Comirnaty vaccination) is in Figure 1 (now Figure 2); As you suggested - unvaccinated (control group: G0, G01, G1) with Comiranty vaccination (G2) is there presented.

We did not combine the three groups into one, the more so because in the G0 group, we distinguished the G01 subgroup (correlation with statistical significance). We even found the statistical significance of the G0 group from G01 for S-RBD. The heterogeneous group has a different response in asymptomatic individuals with a negative RT PCR result than a positive RT PCR test.

The importance shows the correlation of, for example, S-RBD IgG between G1 (COVID-19) and G2 (Comirnaty). Figure 1 (now Figure 2).

The unvaccinated group (G0, G01, G1) presents in Figure 2 (now Figure 3). For explanation, unexposed COVID-19 group includes people who tested negative for COVID-19 and people with no history of being infected before measuring the antibodies.

> As the key points of the previous review remain not addressed, I'm forced to recommend the rejection of this study in its current status.

We are very sorry that there was a misunderstanding.

We will make every effort to improve our work. As the principal author, I have contacted the co-authors directly. In our opinion, we have tried to make our answers comprehensive and help correct the manuscript until it is understandable. Please change and update our answers if we have provided our solutions not exhaustively.

Kind regards,

Authors