Vaccines -1544304

Thank you note

Thank you 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

Major remarks

Reviewer 2

1. **I had some significant difficulties in grasping the very meaning of your research. Serological estimates are reported in a quite confusing way. Table 1, for examples, is redundant in terms of reporting estimates for immunoglobulines, both as categorical values, as continuous values, including data on IgM (whose significance when dealing with immunity is potentially even more conflicting than that associated with IgG). Moreover, the variable "Vaccination response" is not clearly stated.**

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. Therefore, Table 1 was created as a supplement.

We have introduced the correction for Reviewer 1

We suggest a caption beneath Table 1.

The average age of 1060 participants is 47.5 years. There is normal population distribution. All antibodies concentration results are in AU/ml. The COVID-19 test represents population groups tested positive or negative RT-PCR. COVID-19 response represents the population groups where antibodies with a temporal correlation with infection tested, as measured by a positive test. Vaccinated COVID-19 represents the vaccine population groups. Vaccination response refers to the population groups with a temporal correlation with the performance of the vaccination. We rejected from 1063 participants three persons assumed as hyper responders IgM and IgG because of spectacular higher antibodies concentrations measured (>2000 AU/ml IgG and >700 and >300 AU/ml IgM). The person with an over-response to IgG was also an early responder (<14 days) due to an autoimmune disease. In the G5 group too few people to conclude, but four people had high levels of S-RBD IgG and low levels of SARS CoV-2 IgM and IgG. This phenomenon seems to be related to the loss of antibodies following a previous complete vaccination and the duplication of SARS CoV-2 infection.

Table 2 is data on gender and age supplement to Table 1.

Groups	Participants	G0	G01	G1	G2	G3	G4	G5
All	1060	111	43	76	472	42	312	4
%	100	14.62	4.05	7.17	45.66	3.96	29.43	0.38
Sex								
Female	783(73.87%)	94	10	33	63	346	23	3
Male	277(26.13%)	18	33	10	125	19	91	1
Age range								
< 35	220(20.75%)	39	8	20	102	4	47	0
36-49	361(34.06%)	39	12	23	163	15	109	0
>50	479(45.18%)	34	23	33	206	23	156	4

Extending preferential vaccinations to only some age groups in Poland prevented us from correctly interpreting these data. No relationship with gender is in the analyzed groups.

2. **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.**

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.

3. **Characteristics of the study groups are lacking and must be reported. We cannot rule out, according to your report, that some of the differences you identified (but, see point 2) were associated with basal characteristics of the patients rather than with specificities of the formulates.**

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.

Several minor remarks:

- **English text must benefit from a professional English editor or an extensive editing;**

We will follow the suggested recommendations. We use Grammarly premium.

- **Some statement across the text are inappropriate. For instance, even though the efficacy of COMIRNATY is not in discussion, stating that it represents the "most effective vaccine" is not correct, as MODERNA has nearly the very same efficacy profile;**

We will follow the suggested recommendations.

The Pfizer-BioNTech vaccine BNT162b2 (Comirnaty) [1] is recognized so far as among the most effective vaccine in preventing SARS Co-V-2 infection and severe COVID-19 [2,3,4].

- **Discussion and conclusions would benefit from their dichotomization, the latter with the inclusion of some keypoints or more detailed "take home message" as a closing statement.**

The results initially indicate that we should monitor the concentration of SARS COV-2 IgG. According to Prof. Anna Stasiak-Barmuta, we cannot make more precise conclusions because, as we mentioned, vaccinations were planned for specific population groups in Poland. All age groups will be taken into account in our subsequent work. Our suggestions indicate that it is worth measuring the level of antibodies before the next dose of the vaccine.