Antibody response after vaccination against SARS-CoV-2 in adults with hematological malignancies: a systematic review and meta-analysis

With great interest, we read the article entitled "Antibody response after vaccination against SARS-CoV-2 in adults with hematological malignancies: a systematic review and meta-analysis" published in the Haematologica.[1] This article aims to evaluate the immune response to SARS-CoV-2 vaccine in patients with hematological malignancies. The authors found that seroprotection was significantly lower in patients with hematological malignancies after the first and second doses of the vaccine compared with healthy controls or patients with solid tumors. The pooled results of this study provide very useful information for patient selection decisions. However, we would like to point out some of the shortcomings in the methods and results of this meta-analyis to further refine this important study. The most prominent limitations of this meta-analysis are attributed to inaccurate literature searches and insufficiently refined inclusion and exclusion criteria. The authors emphasized in the text that the time interval of the literature search was between July 1, 2020 and September 16, 2021, and the Cochrane Library, MEDLINE, and LitCovid were used for the search. Nevertheless, we recommend further extensive searches of commonly used databases such as EMBASE, Scopus, Web of Science, and Google Scholar, as it is easy to miss targeted studies by selecting just three databases. After an extended search, we found that five eligible studies were missed by the authors.[2-6] Furthermore, the authors should specify i) the type and language limitation of included studies, ii) if there are special requirements for patient characteristics and past history, iii) if there are specific limitations on the completeness of outcome measures and original data. In addition to excluding case reports or series, were other types of studies such as biochemical studies, conference reports, reviews, and comments also excluded? While these methodological details are tedious, they provide a solid premise for further meta-analyses.

Another flaw of this meta-analysis is the high heterogeneity in the outcomes. It must be acknowledged that in order to explain the source of heterogeneity in the outcomes, the authors performed extensive sensitivity analyses, subgroup analyses and meta-regression analysis. We would like to provide constructive comments on this massive project to further refine and consolidate the findings of the study. The authors mentioned in reporting antibody responses to the vaccine in the three categories of patients, that there were significant differences in antibody responses between hematological malignancies, solid cancers, and healthy controls. However, we suggest that the authors should further report on risk ratios for hematological malignancies compared to solid cancers, and risk ratios for hematological malignancies compared to healthy subjects. Second, the authors did not aggregate combined seropositivity rates for lymphocytic and myeloid carcinomas according to the predominant subtype in hematological malignancies. In the meantime, the results can be further refined if the authors report combined response rates for acute leukemia, plasma cell disease, and myelodysplastic neoplasms following vaccination. Third, is it possible to aggregate antibody response rates for immunomodulatory imine drugs and proteasome inhibitors in a subgroup analysis based on the treatments? Finally, the follow-up period in some of the included studies was less than 30 days. Does the shorter follow-up period affect the accuracy of the results? We hope that the authors can respond to the questions and suggestions in order to better refine the conclusions of this study.

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Disclosures

No conflicts of interest to disclose.

Contributions

YZ conceived, designed, and planed the study. YS and YZ supervised and revised the study. Both authors approved the manuscript and agreed to publication.

Data-sharing statement

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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