Response to COVID-19 Vaccination in Adults with Hematologic Malignancies Compared to Patients with HIV and Solid Tumors: Observations from A Single Tertiary Institution

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INTRODUCTION

People with hematologic malignancies (HM) have impaired immune responses following coronavirus 2019 (COVID-19) vaccination, due in part to innate immunosuppression inherent to their disease process, immunosuppressive treatments, and associated comorbidities. We analyzed seroconversion rates following a primary two-dose COVID-19 vaccination series and subsequent seroconversion rates after booster doses across our patient population with various subtypes of HM, HIV infection, and solid tumors.

METHODS

We conducted a retrospective study of 305 fully vaccinated adults with hematologic malignancies (N= 237), HIV (N= 47), solid tumors (N= 12), or other (N=11) seen in a single practice between May 2020 and July 2022. A serum spike antibody level ≥0.8U/mL was considered evidence of seroconversion as defined by the manufacturer. We utilized a Mann-Whitney test to analyze continuous variables and a chi-square test to analyze categorical variables.

RESULTS

Seroconversion after initial vaccination was significantly associated with disease category and treatment received.

CONCLUSION

In concordance with prior studies, we observed that booster vaccinations can result in detectable antibodies in a significant proportion of patients who were seronegative after their primary COVID-19 vaccination series. This supports the utility of antibody testing to identify vaccine response in high-risk patients. However, we did not find a significant difference in rates of breakthrough COVID-19 infection based on antibody titer. Mature data are needed to identify the role of cellular immunity in COVID-19 vaccination.