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**Management of SARS-CoV-2 infection is a major challenge in patients with lymphoid malignancies: Warrants a clear therapeutic strategy**

Sahu T *et al.* SARS-CoV-2 infection a major challenge in patients with lymphoid malignancies

## **Abstract**

Patients with lymphoid malignancies are at higher risk of coronavirus disease 2019 (COVID-19) infection due to their immunocompromised state, and resulting in higher mortality rates in these patients. Anti-CD 20 therapy is one of the leading causes of immunosuppression that worsens in COVID-19 cases. COVID-19 vaccines, on the other hand, appears to be of less beneficial to these patients. Appropriate treatment and recommendations are required for these COVID-19 patients with lymphoid malignancies.

**Key Words:** COVID-19; Lymphoid malignancy; Lymphoma; Vaccination

Sahu T, Verma HK, LVKS B. Management of SARS-CoV-2 infection is a major challenge in patients with lymphoid malignancies: Warrants a clear therapeutic strategy. *World J Virol* 2022; In press

**Core Tip:** Patients with hematologic conditions had two times more likely than others admitted to the hospital. They are being treated with anti-cancer drugs, which make weakens their immune system. As a result, these patients are always at risk of coronavirus disease 2019 (COVID-19). As we know, the COVID-19 is very lethal, and hematological malignancies are likely to increase the risk of negative outcomes from this viral infection. Currently, there are no guidelines for treating COVID-19 infected patients with hematological malignancies.

## **TO THE EDITOR**

In March 2019, the World Health Organization (WHO) declared the novel coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), as a pandemic. Nearly one-third of patients with lymphoid malignancies experienced severe complications of COVID-19 and required hospitalization<sup>[1,2]</sup>. According to the 2017 WHO classification, there are more than 80

different types of mature lymphoma, which are divided into three major categories: B-cell neoplasms, T-cell and natural killer-cell neoplasms, and Hodgkin lymphomas<sup>[3]</sup>. We recently read Riches<sup>[4]</sup> paper entitled "Impact of COVID-19 in patients with lymphoid malignancies" in your prestigious journal "World Journal of Virology". I sincerely thank the author for providing vital information about the effect of COVID-19 in patients with lymphoid malignancies.

Patients with lymphoid malignancies are highly susceptible to COVID-19 infection because they are already immunocompromised due to active cancer treatments. In this review article, the author mainly focused on the impact of COVID-19 on chronic lymphocytic leukemia (CLL) which is the most common form of leukemia in western countries<sup>[5]</sup>. In present article the author included case studies, cohort studies, systematic reviews, and meta-analyses. Several lines of evidence suggested that the type of hematological malignancy and target antineoplastic therapy, older age, and various preexisting conditions such as hypertension and diabetes are all linked to mortality in lymphoma patients<sup>[6-8]</sup>. A retrospective study of 343 patients with hematologic malignancies and hematopoietic stem cell transplantation found that SARS-CoV-2 infection progressed to pneumonia in 119 patients (35%), including those with leukemia, over the age of 65 years, and those with severe neutropenia or lymphopenia. Beside it also found that more than 85% of patients with lymphoid malignancies required hospital admission, with 9% admitted to the intensive care unit and an overall mortality rate is 34.5%<sup>[9]</sup>.

The information available on the effects of COVID-19 in patients with various hematologic diseases is limited. A series of case reports COVID-19 patients with various hematological malignancies increases the risk of adverse complications due to immunosuppression caused by the underlying cancer and treatment effects<sup>[10-13]</sup>.

The author does not have much data to show the impact of lymphoma on COVID-19 vaccination at the time of writing his paper. In this context, we would like to mention two recent studies that analyzed the efficacy of the BNT162b2 mRNA COVID-19 vaccine in patients with CLL and multiple myeloma. According to these studies,

BNT162b2 mRNA COVID-19 vaccine negatively affects the production of neutralizing antibodies in patients treated with anti-CLL and anti-myeloma therapies<sup>[14-16]</sup>. As hematologic malignancies are life-threatening conditions and the majority of the medications are immunosuppressive agents that progress to the severe/critical stage and collapse of patients, data for medications in these conditions with COVID-19 are limited<sup>[17,18]</sup>. To avoid severe conditions and death, researchers/clinicians must develop an appropriate medication guideline for lymphoma patients infected with COVID-19. Percival *et al*<sup>[19]</sup> compiled a list of treatment recommendations for patients with hematologic malignancies during COVID-19 pandemic. Further, more trials on COVID-19 vaccines on these patients should be done along with current therapies of hematologic disease to reveal the appropriate therapies in which these vaccines are effective.

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