

World Journal of *Virology*

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INDEXING/ABSTRACTING

The *WJV* is now abstracted and indexed in PubMed, PubMed Central, Reference Citation Analysis, China National Knowledge Infrastructure, China Science and Technology Journal Database, and Superstar Journals Database.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: *Yu-Xi Chen*; Production Department Director: *Xiang Li*; Editorial Office Director: *Jin-Lai Wang*.

NAME OF JOURNAL

World Journal of Virology

ISSN

ISSN 2220-3249 (online)

LAUNCH DATE

February 12, 2012

FREQUENCY

Bimonthly

EDITORS-IN-CHIEF

Mahmoud El-Bendary, En-Qiang Chen

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2220-3249/editorialboard.htm>

PUBLICATION DATE

July 25, 2022

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INSTRUCTIONS TO AUTHORS

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PUBLICATION ETHICS

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PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>

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

Tarun Sahu, Henu Kumar Verma, Bhaskar Lvks

Specialty type: Virology

Provenance and peer review:

Invited article; Externally peer reviewed

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): 0

Grade B (Very good): B, B

Grade C (Good): 0

Grade D (Fair): D

Grade E (Poor): 0

P-Reviewer: Riches JC, United Kingdom; Sageena G, India; Sivanand N, India

A-Editor: Ma L, United States

Received: June 5, 2021

Peer-review started: June 5, 2021

First decision: July 27, 2021

Revised: July 28, 2021

Accepted: May 27, 2022

Article in press: May 27, 2022

Published online: July 25, 2022



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Abstract

Patients with lymphoid malignancies are at a higher risk of coronavirus disease 2019 (COVID-19) infection due to their immunocompromised state and results 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, appear to be 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; Immunosuppression

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Core Tip: Patients with hematologic conditions are two times more likely than others to be admitted to the hospital. They are being treated with anti-cancer drugs, which 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.

Citation: 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; 11(4): 204-207

URL: <https://www.wjgnet.com/2220-3249/full/v11/i4/204.htm>

DOI: <https://dx.doi.org/10.5501/wjv.v11.i4.204>

TO THE EDITOR

In March 2019, the World Health Organization declared the novel coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2, as a pandemic. Nearly one-third of patients with lymphoid malignancies experienced severe complications of COVID-19 and required hospitalization[1,2]. According to the 2017 World Health Organization 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[3]. We recently read the paper from Riches[4] 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, which is the most common form of leukemia in western countries[5]. In the 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[6-8]. A retrospective study of 343 patients with hematologic malignancies and hematopoietic stem cell transplantation found that severe acute respiratory syndrome coronavirus 2 infection progressed to pneumonia in 119 patients (35%), including those with leukemia, those over the age of 65 years, and those with severe neutropenia or lymphopenia. 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 of 34.5%[9].

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

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 chronic lymphocytic leukemia and multiple myeloma. According to these studies, BNT162b2 mRNA COVID-19 vaccine negatively affects the production of neutralizing antibodies in patients treated with anti-chronic lymphocytic leukemia and anti-myeloma therapies[14-16]. 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[17,18]. To avoid severe conditions and death, researchers/clinicians must develop an appropriate medication guideline for lymphoma patients infected with COVID-19. Percival *et al*[19] compiled a list of treatment recommendations for patients with hematologic malignancies during the 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.

FOOTNOTES

Author contributions: Sahu T, Verma HK, Lvks B wrote and revised the letter.

Conflict-of-interest statement: All the authors report no relevant conflicts of interest for this article.

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S-Editor: Wang JJ

L-Editor: Filipodia

P-Editor: Wang JJ

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