

COVID-19: Variants, Immunization and Medications for Inpatient Treatment

Ericson Monday*

Department of Genetics and Biotechnology, University of Trás-os-Montes and Alto Douro (UTAD), 5000-801 Vila Real, Portugal

Description

The COVID-19 pandemic has presented an unprecedented global challenge, causing significant morbidity and mortality worldwide. Since its initial outbreak, the virus has undergone several mutations, giving rise to different variants that pose unique challenges to public health. In response, vaccination efforts have been intensified to curb the spread and severity of the disease. Additionally, healthcare professionals have continuously sought effective medications for patients hospitalized due to severe COVID-19 infections. This article delves into the COVID-19 variants, the significance of immunization, and the current state of medications available for inpatient treatment.

As a RNA virus, SARS-CoV-2 is inherently prone to mutations. Over time, several variants have emerged with distinct genetic changes, affecting their transmission, virulence, and response to therapeutics. The three major variants of concern that have been extensively studied include Alpha (B.1.1.7), Beta (B.1.351), and Delta (B.1.617.2). These variants have shown increased transmissibility, evasiveness to immunity, and potential impacts on disease severity. The emergence of these variants has created new challenges for public health responses [1]. They have been associated with surges in cases, leading to overwhelmed healthcare systems in many regions. Further research is essential to understand their implications fully and to develop tailored strategies for control and prevention.

Health authorities have implemented extensive genomic surveillance to identify and track variants. This approach allows for timely detection and implementation of targeted control measures. Additionally, the development of vaccines that cover multiple variants is vital to prevent future waves of infections. Vaccination plays a pivotal role in controlling the spread of COVID-19. It not only protects individuals from severe disease but also helps achieve herd immunity, reducing the overall transmission of the virus in communities. Widespread vaccination is critical in preventing future surges and easing the burden on healthcare facilities.

Multiple vaccines have been authorized and approved for emergency use, demonstrating remarkable efficacy and safety profiles. These vaccines primarily target the spike protein of the virus and have shown promising results against various variants. Rigorous testing and post-authorization monitoring have ensured the safety of these vaccines. While vaccination efforts have made significant progress, several challenges persist. Vaccine hesitancy, equitable distribution, and logistics of mass vaccination campaigns are among the main obstacles [2]. Implementing public awareness campaigns and ensuring fair vaccine allocation are essential strategies to enhance immunization rates globally.

*Address for Correspondence: Ericson Monday, Department of Genetics and Biotechnology, University of Trás-os-Montes and Alto Douro (UTAD), 5000-801 Vila Real, Portugal, E-mail: Ericson.m@day.umontreal.pt

Copyright: © 2023 Monday E. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Received: 02 May, 2023, Manuscript No. jbps-23-107744; Editor Assigned: 04 May, 2023, PreQC No. P-107744; Reviewed: 16 May, 2023, QC No. Q-107744; Revised: 22 May, 2023, Manuscript No. R-107744; Published: 29 May, 2023, DOI: 10.37421/2952-8100.2023.06.420

For patients hospitalized with severe COVID-19, a variety of medications have been employed to manage symptoms and reduce disease progression. These treatments include antivirals, immunomodulators, and therapies targeting specific pathways involved in the hyper inflammatory response. Remdesivir, an antiviral drug, has been among the first approved treatments for COVID-19 [3]. It has shown some benefits in reducing the duration of hospital stays and hastening recovery in severe cases. However, its effectiveness may vary depending on the stage of the disease and the specific variant involved.

Monoclonal antibodies have been used as a treatment option for COVID-19 patients who are at higher risk of severe outcomes. These laboratory-made proteins mimic the body's immune response and can help neutralize the virus, potentially preventing disease progression in certain cases. Dexamethasone and other corticosteroids have been shown to improve survival rates in critically ill patients by reducing the excessive immune response known as the cytokine storm. Immunomodulatory therapies are still being studied to determine their efficacy in specific patient populations [4].

The medical community continues to explore new medications and repurpose existing drugs to find effective treatments against COVID-19. Ongoing clinical trials are investigating the potential of antiviral drugs, protease inhibitors, and other innovative therapies that may prove beneficial for inpatient care. COVID-19 has posed a formidable challenge to healthcare systems worldwide. The emergence of variants has further complicated the response to the pandemic, necessitating continuous monitoring and adaptations in public health measures. Vaccination remains the most effective tool to curb the spread of the virus and prevent severe cases [5]. For patients hospitalized with severe COVID-19, a combination of antiviral medications, immunomodulators, and targeted therapies is employed to manage symptoms and improve outcomes.

Acknowledgement

None.

Conflict of Interest

There are no conflicts of interest by author.

References

1. Steele, Molly K., Alexia Couture, Carrie Reed and Danielle Iuliano, et al. "Estimated number of COVID-19 infections, hospitalizations, and deaths prevented among vaccinated persons in the US, December 2020 to September 2021." *Jama Netw Open* 5 (2022): e2220385-e2220385.
2. Stokes, Erin K., Laura D. Zambrano, Kayla N. Anderson and Ellyn P. Marder, et al. "Coronavirus disease 2019 case surveillance—United States, January 22–May 30, 2020." *Morb Mortal Wkly Rep* 69 (2020): 759.
3. Gallo Marin, Benjamin, Ghazal Aghagoli, Katya Lavine and Lanbo Yang, et al. "Predictors of COVID-19 severity: A literature review." *Rev Med Virol* 31 (2021): 1-10.
4. Kim, Lindsay, Shikha Garg, Alissa O'Halloran and Michael Whitaker, et al. "Risk factors for intensive care unit admission and in-hospital mortality among hospitalized adults identified through the US coronavirus disease

- 2019 (COVID-19)-associated hospitalization surveillance network (COVID-NET)." *Clin Infect Dis* 72 (2021): e206-e214.
5. Thakur, Bhaskar, Pallavi Dubey, Joseph Benitez and Joshua P. Torres, et al. "A systematic review and meta-analysis of geographic differences in comorbidities and associated severity and mortality among individuals with COVID-19." *Sci Rep* 11 (2021): 8562.

How to cite this article: Monday, Ericson. "COVID-19: Variants, Immunization and Medications for Inpatient Treatment." *J Biomed Pharma Sci* 6 (2023): 420.