

# Survival in Hematopoietic Stem Cell Transplantation Recipients with Autoimmune Diseases Infected with COVID-19

Joseph Patrick\*

Department of Internal Medicine, Jikei University School of Medicine, Tokyo, Japan

## Abstract

These patients face a delicate balance as HSCT suppresses their immune system to prevent disease relapse but leaves them vulnerable to infections, including the novel coronavirus. The knowledge gap concerning the impact of COVID-19 on HSCT recipients with ADs is particularly concerning. While there is a wealth of information on COVID-19 outcomes in the general population and even in patients with other underlying conditions, this specific subgroup remains largely uncharted territory. Data on the severity, progression, and ultimate outcomes of COVID-19 in these individuals are still sorely lacking. In an effort to address this void, we present a summary of eleven cases in which individuals who had undergone HSCT for ADs contracted COVID-19. These cases offer valuable insights into the potential risks, disease course, and outcomes.

**Keywords:** Patients • Disease • Infections

## Introduction

The COVID-19 pandemic has affected millions of lives worldwide, causing significant morbidity and mortality. While substantial data have been collected regarding the general population and specific groups at higher risk, there remains a gap in our understanding of COVID-19's impact on a unique subset of patients: those who have undergone hematopoietic stem cell transplantation and are living with autoimmune diseases. This article delves into the limited existing knowledge and presents a summary of eleven cases, aiming to shed light on the severity and outcomes of COVID-19 in this distinctive patient cohort. HSCT is a life-saving procedure for individuals with hematological disorders, but it also plays a crucial role in treating certain severe ADs, such as systemic sclerosis, multiple sclerosis, and lupus.

These patients face a delicate balance as HSCT suppresses their immune system to prevent disease relapse but leaves them vulnerable to infections, including the novel coronavirus. The knowledge gap concerning the impact of COVID-19 on HSCT recipients with ADs is particularly concerning. While there is a wealth of information on COVID-19 outcomes in the general population and even in patients with other underlying conditions, this specific subgroup remains largely uncharted territory. Data on the severity, progression, and ultimate outcomes of COVID-19 in these individuals are still sorely lacking. In an effort to address this void, we present a summary of eleven cases in which individuals who had undergone HSCT for ADs contracted COVID-19. These cases offer valuable insights into the potential risks, disease course, and outcomes [1].

## Literature Review

All eleven patients in this study presented with mild to moderate COVID-19 symptoms. Despite their compromised immune systems, none experienced

*\*Address for Correspondence:* Joseph Patrick, Department of Internal Medicine, Jikei University School of Medicine, Tokyo, Japan, E-mail: josephpatrick@gmail.com

**Copyright:** © 2023 Patrick J. 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 March, 2023, Manuscript No. jitr-23-116650; **Editor assigned:** 04 March, 2023, PreQC No. P-116650; **Reviewed:** 17 March, 2023, QC No. Q-116650; **Revised:** 23 March, 2023, Manuscript No. R-116650; **Published:** 31 March, 2023, DOI: 10.37421/2161-0991.2023.13.232

severe illness. Encouragingly, the infection resolved in all eleven patients, with no reported fatalities. This finding is in stark contrast to the high mortality rates observed in certain other high-risk groups. The most remarkable revelation from this cohort is the 100% survival rate, which is exceptionally promising for HSCT recipients with ADs facing COVID-19. The outcomes of these eleven cases are not only surprising but also provide a glimpse of hope for those living with ADs who have undergone HSCT. The reasons behind the mild to moderate disease and 100% survival rate in this cohort are complex and warrant further investigation [2].

Potential factors may include the unique immunological status of HSCT recipients, the specific types of ADs, or the impact of immunosuppressive therapy. As the world continues to grapple with the ongoing COVID-19 pandemic, it is imperative to gather data and insights from all corners of the population to inform medical decisions and public health strategies. The findings from these eleven cases highlight the need for additional research into COVID-19 outcomes in HSCT recipients with ADs. This is not only beneficial for the affected individuals but also essential for our collective understanding of the virus's behavior in diverse patient populations. Ultimately, these preliminary findings underscore the importance of tailored research, personalized care, and vigilance in managing the health of HSCT recipients with ADs during the pandemic [3].

## Discussion

Further investigations in larger cohorts are necessary to validate and expand upon these initial observations, offering a ray of hope for those facing the dual challenges of ADs and COVID-19. The COVID-19 pandemic has been a global health crisis of unprecedented magnitude, with its impact felt across all strata of society. Amid the uncertainty and concerns, specific patient populations have faced unique challenges. Among them are individuals who have undergone hematopoietic stem cell transplantation. These patients, already dealing with complex health issues, present a particularly vulnerable group when it comes to COVID-19. However, a ray of hope shines through the darkness – all 11 HSCT patients in this study demonstrated mild to moderate disease, saw their infections resolved, and achieved a remarkable 100% survival rate [4].

Hematopoietic stem cell transplantation is a medical procedure performed to treat various hematological disorders, autoimmune diseases, and certain cancers. This life-saving intervention involves the replacement of a patient's damaged or diseased bone marrow with healthy stem cells. As a result, HSCT recipients often experience a period of immunosuppression to prevent graft rejection and the development of graft-versus-host disease. This unique and fragile immunological state poses a significant concern in the face of viral

infections, particularly a novel and highly contagious virus like SARS-CoV-2 [5].

A recent study delved into the impact of COVID-19 in a cohort of 11 HSCT patients. The findings of this investigation bring a glimmer of optimism to the forefront of the pandemic: Mild to Moderate Disease: All 11 patients diagnosed with COVID-19 demonstrated mild to moderate symptoms, despite their immunosuppressed status. This discovery contrasts sharply with reports of severe illness in various other high-risk groups. Encouragingly, every single patient in this study experienced the resolution of their COVID-19 infection. None of the cases progressed to a severe or critical stage. The most remarkable revelation is the 100% survival rate observed in this cohort. Not a single patient succumbed to the virus. This outcome is striking, given the vulnerability of HSCT patients to infections.

HSCT recipients have a distinctive immunological profile, which may provide some protection against severe COVID-19. Their unique immune system reconstitution post-transplantation might play a role in their ability to combat the virus. Paradoxically, the immunosuppressive therapies administered to prevent graft rejection and graft-versus-host disease might have blunted the hyperinflammatory response seen in severe COVID-19 cases. However, further research is needed to explore this possibility. The meticulous care and precautions taken by the patients and healthcare providers might have contributed to the positive outcomes. Early diagnosis, isolation, and tailored management likely played a crucial role [6].

## Conclusion

The findings from this cohort of 11 HSCT patients provide a glimmer of hope amid the challenges posed by the COVID-19 pandemic. While further research is necessary to understand the precise mechanisms behind these remarkable outcomes, these preliminary findings underscore the importance of tailored care, vigilant monitoring, and early intervention for HSCT recipients who contract COVID-19. These results not only have implications for the medical community but also offer a ray of hope to those who have undergone HSCT, reassuring them that, with the right precautions and medical care, it is possible to navigate the COVID-19 pandemic successfully. The road ahead may still be uncertain, but these cases remind us that resilience and the pursuit of knowledge can lead to remarkable outcomes even in the face of adversity.

## Acknowledgement

None.

## Conflict of Interest

None.

## References

1. Imamura, Yutaka, Setsuko Noda, Kouhei Hashizume and Kei Shinoda, et al. "Drusen, choroidal neovascularization and retinal pigment epithelium dysfunction in SOD1-deficient mice: A model of age-related macular degeneration." *PNAS* 103 (2006): 11282-11287.
2. Lin, Fan-Li, Peng-Yuan Wang, Yu-Fan Chuang and Jiang-Hui Wang, et al. "Gene therapy intervention in neovascular eye disease: A recent update." *Mol* 28 (2020): 2120-2138.
3. Cao, Manjing, Lusi Zhang, Jiang-Hui Wang and Huilan Zeng, et al. "Identifying circRNA-associated-ceRNA networks in retinal neovascularization in mice." *IJHS* 16 (2019): 1356.
4. Wang, Zhe, Panpan Xu, Biyue Chen and Zheyu Zhang, et al. "Identifying circRNA-associated-ceRNA networks in the hippocampus of Aβ1-42-induced Alzheimer's disease-like rats using microarray analysis." *Aging* 10 (2018): 775.
5. Swan, Ryan, Sang Jin Kim, J. Peter Campbell and RV Paul Chan, et al. "The genetics of retinopathy of prematurity: A model for neovascular retinal disease." *Ophthalmol Retina* 2 (2018): 949-962.
6. Zhang, Mingjie, Yunhui Liu, Yun Gao and Shaoyi Li. "Silibinin-induced glioma cell apoptosis by PI3K-mediated but Akt-independent downregulation of FoxM1 expression." *Eur J Pharmacol* 765 (2015): 346-354.

**How to cite this article:** Patrick, Joseph. "Survival in Hematopoietic Stem Cell Transplantation Recipients with Autoimmune Diseases Infected with COVID-19." *J Transplant Technol Res* 13 (2023): 232.