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Journal of Case Reports and Medical History

(ISSN: 2831-7416) *Open Access*

Short Report Volume 4 – Issue 7

Vulnerability to SARS-CoV-2 in patients with immunodeficiency

Safaa Mourabit*,[1], Leila Barakat[2], Khadija Echchilali[2], Mina Moudatir[2] and Hassan El Kabli[2]

[1]Resident Physician, Department of Internal Medicine, Ibn Rochd University Hospital, Casablanca, Morocco

[2]Professor in the Department of Internal Medicine at the Ibn Rochd University Hospital in Casablanca, Morocco

***Corresponding author:** Safaa Mourabit, Resident Physician, Department of Internal Medicine, Ibn Rochd University Hospital, Casablanca, Morocco

Received date: 10 May, 2024 | **Accepted date:** 21 May, 2024 | **Published date:** 25 May, 2024

Citation: Mourabit S, Barakat L, Echchilali K, Moudatir M and El Kabli H. (2024) Vulnerability to SARS-CoV-2 in patients with immunodeficiency. J Case Rep Med Hist 4(7): doi https://doi.org/10.54289/JCRMH2400132

Summary

Common Variable Immunodeficiency (CVID) is a genetic disorder characterized by impaired function of T and B lymphocytes, leading to reduced antibody production and immune deficiency. Patients experience recurrent severe infections due to their weakened immune system. The article presents a retrospective study on patients with CVID during the COVID-19 pandemic. The study revealed that patients with CVID, with an average age of 27 years and a male majority, presented varied COVID-19 symptoms, ranging from classic flu-like syndrome to more severe respiratory symptoms. Although 40% of patients received two doses of COVID-19 vaccine, none required hospitalization, and all recovered favorably. Treatments administered included azithromycin, paracetamol, vitamin D, and zinc, in addition to regular immunoglobulins.

Abbreviations: CVID: Common Variable Immunodeficiency

Introduction

CVID is a hereditary disease characterized by impaired T and B lymphocyte function, resulting in reduced antibody production and immune response deficiency. This condition manifests as recurrent, often severe and potentially fatal infections due to the immune system's inability to effectively combat pathogens. Although one of the most common primary immunodeficiencies, it remains relatively rare. Its prevalence is estimated at approximately 1 case per 50,000 to 100,000 births in the general population. However, its actual prevalence may be underestimated due to diagnostic difficulties and genetic variations. It is primarily caused by inherited genetic mutations affecting genes involved in the development and function of T and B lymphocytes. Several genes have been associated with CVID. These mutations alter lymphocyte maturation, signaling, or function, thereby compromising the effectiveness of the immune response. As part of a retrospective descriptive analytical study, we examined the records of patients followed for CVID during the COVID-19 pandemic. Here are the main results we observed:

Results

We found an average age of 27 years among patients, with a clear male predominance representing 90% of cases.

Three patients reported exposure to the virus. Clinically, half

of the patients presented with a febrile flu-like syndrome associated with anosmia and ageusia. Infectious pneumonia was radiologically confirmed in 30% of patients, although all PCR tests for COVID-19 were negative. Treatments administered included azithromycin, paracetamol, vitamin D, and zinc. Forty percent of patients received two doses of COVID-19 vaccine. The outcome was favorable in all patients, none of whom required hospitalization. It is worth noting that patients regularly received their immunoglobulin therapies.

Discussion

The diversity of clinical presentations of COVID-19 in patients with CVID, ranging from classic flu-like syndrome to more severe respiratory symptoms, highlights the complexity of the disease and the variability of its severity in immunocompromised individuals. This observation underscores the need for an individualized approach in the medical management of these patients to better understand and treat the different manifestations of the disease. The relatively low prevalence of COVID-19 in patients with CVID, despite their immune vulnerability, suggests the existence of potential protective mechanisms related to their treatment and regular medical follow-up. This highlights the crucial importance of proactive management of the health of patients with CVID, including close monitoring of their clinical status and regular provision of immunological treatments, such as immunoglobulins. The administration of two doses of vaccine in 40% of patients underscores the importance of vaccination in preventing severe forms of the disease in immunocompromised individuals. However, it is important to note that despite vaccination, some patients may still experience COVID-19 symptoms, emphasizing the need for other preventive and treatment measures for this vulnerable population. Finally, the favorable outcome of all patients without the need for hospitalization underscores the effectiveness of treatments and medical follow-up in managing cases of COVID-19 in patients with CVID. This highlights the importance of providing specialized and individualized medical care to immunocompromised patients during the COVID-19 pandemic to maximize the chances of recovery and reduce associated complications.

Conclusion

The study emphasizes the importance of vaccination in immunocompromised patients to prevent severe forms of COVID-19. Furthermore, it highlights the effectiveness of treatments and medical follow-up in managing COVID-19 cases in patients with CVID. These results have significant implications for the clinical management of immunocompromised patients during the COVID-19 pandemic.