

69. **MYASTHENIA GRAVIS EXACERBATION FOLLOWING COVID-19 VACCINE: A CASE REPORT.**

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INTRODUCTION: As of December 2021, the World Health Organization (WHO) reports that Coronavirus disease 2019 (COVID-19) led to about 5,403,662 deaths. While COVID-19 has resulted in millions of deaths worldwide to date, vaccination remains the mainstay of infection control. AZD1222 (AstraZeneca vaccine) was distributed in Sudan by the COVID-19 Vaccines Global Access facility in March 2021. It was added to the emergency use list by WHO in the middle of February 2021. However, vaccine safety among patients with autoimmune diseases, such as myasthenia gravis (MG), is yet to be established. MG is a relatively rare illness that could result in life-threatening complications. Myasthenic crisis is considered the most serious complication of MG that can lead to death due to aspiration and respiratory failure. Plasma exchange (PLEX), Immunoabsorption (IA), and intravenous Immunoglobulin (IVIG) are the first-line treatment for myasthenic crisis. It is proven that cortisone has a positive effect when used as add-on therapy with PLEX/IA and IVIG.

THE CASE: We report the case of a 37-year-old Sudanese female who presented to the emergency room with an exacerbation of her previously well-controlled MG following her second dose of AZD1222 vaccination. The exacerbation symptoms at time of presentation were severe generalized body weakness that increasing overtime and shortness of breath. Computerized tomography of the chest was performed, and it revealed no evidence of COVID-19. Management at the ER started with rehydration and IV methylprednisolone 1g, followed by IV hydrocortisone 200mg. She continued to deteriorate and was admitted to the intensive care unit where she was intubated and placed on a mechanical ventilator. IVIG was requested but couldn't be obtained due to the low-income setting, and fourteen days after admission patient died due to circulatory collapse. Our study aims to present an MG case with features of MG exacerbation following the administration of the second dose of AZD1222.

CONCLUSION: Little is known about the effect of different COVID-19 vaccines on subgroups of patients with autoimmune diseases like MG. Although the safety profile of AZD1222 is generally reassuring, people with severe underlying diseases were excluded from trials. Therefore, more efforts and experimental studies may be needed, with closer vigilance in MG patients. It has not been elucidated how the COVID-19 vaccine might provoke autoimmunity, but several theories have been proposed. Molecular mimicry theory can explain how the genetic material of a virus could provoke autoimmunity, it describes the cross-reactivity of antibodies produced against proteins that are encoded by viral genetic material with the proteins located at the post-synaptic membrane. There is a debate about whether vaccine benefit outweighs the risk in MG patients or not. However, we believed that MG patients should be informed about the benefit and risks of COVID-19 vaccination.

Key words: Myasthenia Gravis; COVID-19; Vaccine; AstraZeneca Vaccine; Case report. (Source: MeSH-NLM).