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Case Report

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Guillain-Barre Syndrome Two Weeks after 1st Dose of Covid-19

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ABSTRACT

Case Diagnosis: Guillain-Barre Syndrome (GBS) was diagnosed in a female with ataxia, paresthesia, and dysmetria confirmed with CSF analysis.

Case Description: We present a case about a 34-year-old female that developed GBS two weeks after receiving the first dose of the Pfizer COVID-19 vaccine. Setting: The diagnosis was made in the acute hospital, and then treatment continued in the acute rehabilitation setting.

Assessment/Results: Results from the CSF analysis were conclusive with the physical presentation, and the patient was started on the proper treatment protocol, which included IVIG and high-dose steroids. She continually progressed during her rehabilitation period, and an EMG and NCS were scheduled as an outpatient for better confirmation.

Conclusion: It is important to note a patient's past medical history in the acute rehabilitation setting, including any recent vaccinations. This is because the VAERS requires that all healthcare professionals report adverse events, and all vaccine manufacturers must disclose any adverse events reported to them.

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Introduction

Guillain-Barre syndrome (GBS) is a rare immune-mediated polyneuropathy that results from the autoimmune destruction of the peripheral nervous system. The incidence of GBS is approximately 0.4 to 2 per 100,000, with nearly 100,000 cases reported worldwide every year. Almost 70% of patients with GBS report an antecedent illness within six weeks, while the other 30% report antecedent events like vaccinations, trauma, and in some cases, surgery. Initial symptoms may include ascending tingling, numbness, and weakness, which may progress to paralysis; and nearly 30% of patients will develop respiratory failure [1].

In 1976, there was substantial evidence of a causal link between the US swine influenza vaccine and the development of GBS. Thus, the Vaccine Adverse Event Reporting System (VAERS) was established in 1990 as a national system that helped detect any safety problems with U.S-licensed vaccines. To date, the VAERS has reported four cases of GBS after the 1st dose and three cases reported after the 2nd dose of the Pfizer COVID-19 vaccine. Our case will be the fifth reported case after the 1st Pfizer vaccine dose.

Case Report

We present a case report about Guillain-Barre Syndrome (GBS) that developed two weeks after the patient received the Pfizer COVID-19 vaccine. On January 25th, a 34-year-old female with hypertension, sleep apnea, orthostatic hypotension, and sinus tachycardia presented for further evaluation of ataxia, paresthesia, and dysmetria symptoms. Before the onset of symptoms, she was fully independent.

She reported any gait instability and feeling uncoordinated when moving. It was noted that she favored her right side and frequently lost balance. Upon physical examination, she had ascending paralysis with no reflexes present. A cerebrospinal fluid (CSF) analysis showed elevated CSF protein at 71, white blood cell (WBC) count of 1. Neurology was consulted, and a diagnosis of GBS was made. The decision was made to put her on IVIG.

An incidental left adrenal mass and pituitary lesion was found on imaging, for which she will follow up with endocrinology as an outpatient. She received three days of IVIG for GBS in addition to five days of IV empiric high-dose steroids for the left adrenal mass and pituitary lesion. She was continued on a regular diet with thin liquids and oxygenated on room air at 98%. She was alert and oriented times three with no behavioral issues present. Two days after the initial presentation, she was only able to ambulate from the bedside for a total of 3 feet. This was limited by

anxiety and fear of falling. Upon further evaluation, she presented with decreased kinesthetic and proprioception awareness. Lateral instability and sway were noted.

Additionally, decreased coordination with transfers, requiring VCs for proper hand placement during transfers. She continued to present with ataxia and dysmetria. Sensory abnormalities in the bilateral upper extremity and lower extremities also limited her ability to coordinate activities, as she reported that she could not feel where her hands were placed. Due to the decreased awareness of balance impairment and reduced awareness of the environment, she was advised to continue using the assist device.

On February 2nd, she reported an improvement in her ability to reach. Upon evaluation, she was not overshooting as much as before. By the following day, physical therapy was determined that it was not safe to ambulate at this time due to poor motor control and strength. She was able to complete standing three times from bed for one minute each. Her bilateral lower extremity needs to be blocked due to uncontrolled ataxic movements and poor motor control. She continued to be very fearful to stand. On further examination, the bilateral lower extremity was rated at a 3/5.

Due to the high level of rehabilitation required and sufficient clinical evidence to support GBS diagnosis, treatment was initiated. Once she was well enough to discharge, it was recommended that she receive further antibody testing and neurography in an outpatient setting. Currently, the following are being performed: ganglioside antibodies, nicotinic acetylcholine receptor antibodies, an MRI neurography, and EMG and NCS for better confirmation.

Discussion

GBS is an acute immune-mediated polyradiculopathy typically characterized by rapidly progressive hyporeflexia or areflexia and weakness of the limbs. Pain, sensory symptoms, involvement of autonomic nerves and cranial nerves may also be present. In severe cases, if left untreated, it can render a person unable to breathe independently. Diagnosis may be supported with an electromyography (EMG), nerve conduction study (NCS), or cerebrospinal fluid (CSF).

In 1976, there was substantial evidence of a causal link between the US swine influenza vaccine and GBS development. It was reported that the associated risk of development of GBS with this vaccine was 1 per 100,000. Additionally, since the causal link was established, special interest groups, especially adolescents and those at increased risk of developing an autoimmune disease [2].

The Vaccine Adverse Event Reporting System (VAERS) was established in 1990 as a national system that helped detect any safety problems with any U.S-licensed vaccines. Many adverse events are reported to the VAERS, including GBS [3]. With the VAERS, it is required that healthcare professionals report adverse events and that all vaccine manufacturers must disclose any adverse events that are reported to them.

To date, the VAERS has reported four cases of GBS after the 1st dose, and 3 cases reported after the 2nd dose of the Pfizer COVID-19 vaccine. Our case will be the fifth reported case after the 1st Pfizer vaccine dose [4]. Comparably, there has only been one case of GBS reported to VAERS after the 1st dose and one case after the 2nd dose with the Moderna COVID-19 vaccine [5]. Therefore, with the data presented at the VAERS, more cases of GBS were reported with the Pfizer vaccine than the Moderna vaccine.

In conclusion, GBS can range from mild with mild weakness to severe with paralysis rendering a person unable to breathe independently. With the COVID-19 pandemic and the worldwide vaccination campaign, it is essential that clinicians and other healthcare workers rapidly recognize those neurological complications early. The benefits of the COVID-19 vaccine greatly outweigh those potential side effects, especially the low risk of neurological complications with GBS. Lastly, we support the COVID-19 vaccination guidelines recommendations set out by the WHO and CDC.

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