

Rabies Vaccine Induced Guillain Barre Syndrome

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Abstract: GBS is a neurological disease where mild infections can cause the immune system to trigger to destroy the myelin sheath of the neurons. Few vaccines such as rabies vaccine have also found to be causing it. Fewer studies from India have been shown to have such adverse reactions which are either unreported or misdiagnosed. Hence, this case study was rare and worth reporting to raise awareness for the same.

Keywords: Rabies vaccine, Guillain Barre Syndrome

1. Introduction

Guillain - Barre syndrome was first diagnosed in 1916, by two French neurologists Guillain Barre and Strohl. The disease was characterized by acute flaccid paralysis with an elevation of CSF proteins. [1] Studies have shown that 60% of cases are reported to have had diarrhea and upper respiratory tract infections as primary symptoms. The most common causative organism is Campylobacter Jejuni which accounts for 30% of the cases. [2] In 1976, there was a rapid rise in the number of cases of Guillain – Barre Syndrome (GBS) in United States which was considered to be due to an increase in New Jersey H1N1 “swine flu” immunisation. [3]

Various studies, have reported that pathogenesis of GBS occurs not only due to infection but also by many vaccines such as swine flu, oral polio and rabies vaccines. [4] Rabies is a viral, zoonotic disease which is preventable by vaccination. It's a fatal disease if the symptoms start emerging. According to World Health Organization (WHO), 99% of domestic dogs are reported to cause transmission of rabies virus among the humans. The human vaccines and immunoglobulins are very effective but in developing countries inadequate knowledge and improper facilities makes the situation difficult. [5] The vaccines used in developing countries are made up of older formulations so as to match the cost - effectiveness and these vaccines expose the patients to an increased risk of adverse reactions, one of them being Guillain–Barre syndrome. [6]

2. Case Report

This case involves a 24 - year - old patient with history of dog bite two months ago for which he was given full course of rabies vaccine prior to admission to the hospital. He presented to the tertiary care hospital after 24 days of vaccination with the complaints of difficulty in standing and walking. On general examination there was weakness in the lower limbs bilaterally from hip to the toes. His musculoskeletal examination showed significant reduction of power and the grade of power 2/5 was in lower limbs bilaterally. There were also diminished deep tendon reflexes.

The upper limbs had normal strength. Nerve conduction examination showed decreased nerve conduction bilaterally. On the basis of physical examination and acute weakness post vaccination, he was diagnosed with Guillain Barre Syndrome and treatment was started for the same. The treatment consisted of intravenous corticosteroids and immunoglobulins following which the patient responded well and there was an improvement in his condition. The Naranjo's score was 6 (probable) and according to World health Organization (WHO) - Uppsala monitoring Centre (UMC) causality assessment showed probable correlation with the current adverse event. [7] This case is worth reporting as it is a rare case and only a few cases have been diagnosed and reported till date.

3. Discussion

Guillain–Barre syndrome is an autoimmune disease and has a high fatality rate. The disease progresses by ascending paralysis with sensory abnormalities and various stages of weakness. [8] Similarly, in this pandemic many cases have been reported that patients who were infected with COVID - 19 have had GBS. Two thirds of patients from the group who have had GBS with COVID - 19 have reported to have respiratory symptoms. [9] Various other etiologies other than infection are vaccines which have shown to cause GBS which includes pneumococcal, swine flu, polio virus [10] and rabies vaccines. [11]

The first symptoms of GBS are weakness, numbness, pain in the limbs, paresthesia or some combination of these symptoms. The characteristic feature is bilateral and progressive symmetric weakness of the limbs, and there is progressive weakness over a time period of 12 hours to 28 days which can be seen in this case. [12] Early interventions by intravenous immunoglobulins (IVIg) or plasmapheresis can decrease the symptoms and can cause near normal strength to the limbs [13]. Similarly, it was seen in this case as soon as the patient was given intravenous immunoglobulins his condition improved and was later referred to the neurological department.

4. Conclusion

GBS is a neurological disease where mild infections can cause the immune system to trigger to destroy the myelin sheath of the neurons. [14] Few vaccines such as rabies vaccine have also found to be causing it. [15] Fewer studies from India have been shown to have such adverse reactions which are either unreported or misdiagnosed. Hence, this case study was rare and worth reporting to raise awareness for the same.

5. Financial Support and Sponsorship

Nil

6. Conflict of Interest

There is no conflict of interest.

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