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(CASE REPORT)

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Case study on Guillain Barre Syndrome

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Abstract

A rapid onset muscle weakness caused by the immune system damaging the peripheral nervous system resulting in Guillian Barre Syndrome. Typically both side of the body are involved and initially symptoms are changes in sensation or pain often in the back along with muscle weakness, beginning in the feet and hands, often spreading to the arms and upper body. A patient who is admitted in emergency diagnosed to have GBS and her muscle weakness leads to inability in walking and moving, despite of this the prognosis of GBS is good and patient gain strength after proper diagnosis.

Keywords: Guillain Barre Syndrome; Children; Neuronal disorder; Immune disorder; Nervous system disease.

1. Introduction

The body's nerves are impacted by the transitory disorder known as Guillain-Barré syndrome (GBS). The facial, chest, and leg muscles may become weakened, painful, or even momentarily paralyzed as a result of GBS. Breathing difficulties may result from paralysis of the chest muscles. The Guillain-Barré syndrome is incurable. Early discovery is essential for controlling GBS medically. Although frequently treatable, this illness poses a risk to life. A youngster with GBS needs to be admitted right away and kept under close medical supervision in the intensive care unit. The following case study is based on a 10 year old girl suffering from the same condition, a detail description on management and other related stuff is being discussed.

2. Case Presentation

Weakness in upper & lower extremities, fever and walking difficulty. After a detail investigation she was diagnosed with Guillain Barre Syndrome. Parents evident that she was having respiratory distress before and fever continued for long time. No bowel movement since last night, she was not having any signs of trauma, no allergies or any surgeries before. Family members were free from any communicable and non-communicable disease.

2.1. Physical examination

On physical examination, patients temperature was 37.9degrees, BP was 80/40, heart rate found to be 150b/m, and respiration was 20b/m, her weight was 19kgs and height was 120.5cm. She was having pain in legs while examination, and

2.2. Neurological examination

When strength was tested left extremities of both hand and leg was much weaker than right. When objects are given to grasp she fell the object on floor. Movement were slow, she was unable to walk.

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3. Results

The body's immune system targets a portion of the peripheral nervous system, causing Guillain-Barre Syndrome (GBS), a polyradiculoneuropathy, according to the World Health Organization. Attack victims may experience intense pain, impaired sensation, and impaired motor control, which could result in upper- and lower-extremity disability. Typically, a bacterial or viral illness, a vaccination, or surgery precedes GBS[1].

If delayed diagnosis and treatment occur in the emergency department, they can cause more complications and a worse outcome for the patient. Therefore, it is essential for the emergency medicine physician to consider the diagnosis in the Pediatric patient presenting with weakness, limping, lower extremity pain, areflexia, or refusal to walk[2].

3.1. Etiology

Acute immune-mediated polyneuropathy known as the Guillain-Barré syndrome (GBS) is one of the most frequent causes of acute flaccid paralysis in healthy infants. One to two cases of GBS per 100,000 people per year have been recorded as the global incidence rate. Men are one and a half times more likely to be affected then women.

Many studies have attempted to show an association between vaccination, particularly the influenza vaccine and GBS; however, much debate remains regarding this topic. Though it is possible that there is a link between GBS and vaccinations more studies are needed[3].

3.2. Classification

There are five major types of GBS:

- Acute Inflammatory Demyelination polyneuropathy (AIDP): this is the most common type and shows auto immune response against Schwann cell.
- Miller fisher Syndrome: this is the rare variant, manifest as a descending paralysis, it usually affects the eye muscles first and presents with the traid of opthalmoplegia, ataxia and areflexia.
- Acute Motor Axonal Neuropathy (AMAN): Also known as Chinese paralytic syndrome, it attacks motor nodes of Ranvier and is prevalent in China and Mexico.
- Acute Motor Sensory Axonal Neuropathy (AMSAN): Similar to AMAN, affects the sensory with several axonal damage.
- Acute Panautonomic Neuropathy: most rare variant of GBS and sometimes accompanied by encephalopathy.

3.3. Causes

Infectious onset:

- 2/3 people with GBS have experienced an infection before the onset of the condition.
- Most commonly, these are episodes of gastroenteritis or a respiratory tract infection.
- 30% of cases are proved by campylobacter a jejuni bacterium, which causes diarrhoea.
- Previous hepatitis E virus infection has been found to be more common in people with GBS.

3.4. COVID 19 related

GBS had been reported in association with COVID 19 and may be a potential neurological complication of the disease.

3.4.1. Clinical features

The most common clinical manifestations of GBS in children are pain, progressive muscle weakness, and diminished deep tendon reflexes, even though the findings of various studies from various geographical regions have revealed considerable variability regarding the epidemiology and clinical features of the disease. Leg pain and refusal to move are the most typical symptoms in younger children under the age of four.

3.4.2. Diagnostic Evaluation

Medical history, physical examination and different test. Tests such as Nerve Conduction Studies, CSF examination, Electromyography, Electrocardiogram and Pulmonary Function Test.

3.4.3. Treatment

Immunotherapy: Plasmapheresis and intravenous Immunoglobins (IVIG) are two major immunotherapy treatments for GBS.

`Plasmapheresis attempts to reduce the body's attack on the nervous system by filtering antibodies out of the blood stream.

Similarly, administration of IVIG neutralizes harmful antibodies and inflammation.

Respiratory failure: Respiratory failure any require intubation of the trachea and breathing support through mechanical ventilation

Pain: While pain is common in people with GBS, studies comparing different types of pain medication are sufficient to make a recommendation as to which should be used.

Rehabilitation: Following the acute phase, around 40% of people require intensive rehabilitation with the help of a multidisciplinary team to focus on improving activities of daily living.

3.4.4. Nursing Management

Acute pain related to biological injuring agent as evidence by guarding behaviour.

Impaired physical mobility related to neuromuscular impairment as evidence by limited range of motion.

Impaired urinary elimination related to neuromuscular impairment as evidence by urinary retention.

Anxiety of parents related to change in health status and threat to self-concept of child as evidence by expressed concern and worry about permanent effects of disease.

Ineffective breathing pattern related to ascending paralysis/decrease lung as evidence by respiratory depth changes.

4. Discussion

Guillain Barre Syndrome is a condition in which body's immune system attack the part of nervous system, resulting in progressive weakness throughout the body. The symptoms can quickly spreads, resulting into a medical emergency. This syndrome can occur a few days or weeks after respiratory or gastrointestinal viral infection. Some countries reported an increased incidence of GBS followed by zika virus. In rare cases vaccination may increase the risk of GBS[4].

5. Conclusion

During hospital stay, for more than a week, her lower and upper extremities were strength significantly. During discharge, her weakness in extremities was almost resolved. Follow-up was recommended to parents.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

Reference

[1] World Health Organization. "Guillain Barre Syndrome". Available from: https://www.who.int/news-room/fact-sheets/detail/guillain-barr%C3%A9-syndrome

[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3572648/#:~:text=We%20have%20presented%20a%20case,considered%20with%20the%20appropriate%20presentation

[3] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5904738/

[4] https://dubaimobility.com/what-is-guillain-barre-syndrome/

[5] A 10 year old girl was immediately rushed to hospital by her parents with complaints of progressive