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Guillain-Barre Syndrome during Post-Partum Period: A Rare Entity

Sandeep Ku Ratha[1], Sumita Sharma[2*] and Srikant Ku Sahoo[3]

[1]Department of General Medicine, IMS & SUM Hospital, Siksha 'O' Anusandhan University, Bhubaneswar, Odisha, India

[2]Department of Community Medicine, IMS & SUM Hospital, Siksha 'O' Anusandhan University, Bhubaneswar, Odisha, India

[3]Department of Neurology, IMS & SUM Hospital, Siksha 'O' Anusandhan University, Bhubaneswar, Odisha, India

[*]Corresponding e-mail: drsumitasharma1993@gmail.com

ABSTRACT

Guillain-Barre Syndrome (GBS) is a serious post-infectious immune-mediated neuropathy presented with diminished reflexes and resultant weakness. Global report on GBS depicted an incidence of 1 to 4 cases per 100,000 annually and carries a high maternal risk. It is very rare among post-partum women. ***Aim:*** *The study is a case of 24-year women within 2 months of the post-partum period who presented with flaccid quadriplegia diagnosed as GBS. The case is discussed in all aspects of diagnosis, treatment, and outcome.*

Keywords: Guillain-Barre Syndrome, Post-partum

INTRODUCTION

Guillain-Barre Syndrome (GBS) is otherwise known as Landry's paralysis [1]. It is a heterogeneous group of immune-mediated disorders of the central nervous system manifested an acute inflammatory polyradiculoneuropathy with resultant weakness and areflexia with or without abnormal sensory function [2]. The symptoms of GBS are preceded by a pre-existing episode in about 66% of patients. There is evidence of association present between the disease and the conditions like bacterial and viral infections, systemic diseases, neoplasia, traumatic injury, and organ transplant, etc. However, the association between GBS and pregnancy is very rare [3]. The incidence is 1 to 4 cases per 100,000 annually, with a high maternal risk. The study conducted by Kachru, et al. depicted that the risk of GBS increases in the post-partum period [1]. During the reproductive period, when women are suffering from *Campylobacter jejuni* or Cytomegalovirus at the time of pregnancy, the development of GBS is likely to be more. The symptoms which are presented by pregnant women are very nonspecific those are mimic physiological changes in pregnancy. CSF findings of albumin-cytologic dissociation with increased protein level and normal mononuclear leukocytes are a typical characteristic of GBS. Most of the patient's reports to physicians with the complaint of paresthesias, numbness, or similar sensory changes. Paresthesia starts in the toes and fingertips, progressing upwards, but generally does not extend beyond the wrists or ankles. Here is the report of a unique case of GBS complicating pregnancy in the post-partum period. The patient recovered well with supportive measures and Intravenous Immunoglobulin (IVIG).

CASE REPORT

A 33-year-old female, multigravida underwent cesarean section at term as she underwent C-section in her previous childbirth period. She stayed in the hospital for 8 days and was discharged home on the 9th day with proper medication. After 45 days of the post-operative procedure, the patient developed pain in lower limbs below the knee joints followed by numbness with a tingling sensation in both hands and wrists, lower limbs below the knees, and progressive weakness in the form of difficulty in buttoning and unbuttoning and combing hair, difficulty in standing from squatting position, difficulty in walking through the staircase and then subsequently bedridden. The patient had a similar type of

illness for 9 years. At that time she was in the 1-month post-partum period and due to the above symptoms, she was diagnosed with AIDP, for which she had taken treatment with the required dose of IVIG and completely recovered after 30 days of medication. On general examination, the patient was conscious. There was no pallor, icterus, clubbing, cyanosis, edema, lymphadenopathy found. Her hydration status was normal. At the time of admission, her vitals were within the normal limit. During the period of hospitalization, a complete neurological evaluation revealed bilateral limb weakness, areflexia, and graded sensory loss. She had progressive ascending paralysis with involvement of the lower limbs followed by upper limbs without bladder and bowel involvement. The respiratory system, autonomic system, and all her cranial nerves were normal. She presented with all features of the flaccid quadriplegia with grade three power in both lower limbs and grade four power in upper limbs. There was decreased Muscle tone and deep tendon reflexes were lost. CBC with peripheral smear, kidney function test, and liver function test, and urinalysis were normal. Viral markers, venereal disease research laboratory, antiphospholipid antibodies (IgG and IgM), and lupus anticoagulant test were negative, and so were her Antinuclear Antibodies (ANA), rheumatoid factor, C-reactive protein. Thyroid function tests were within the normal range. Magnetic resonance imaging was normal. Nerve conduction tests depicted as decreased conduction velocity and cerebrospinal fluid analysis revealed four cells/mm^3 and protein of 80 mg/dl which is a suggested diagnosis of GBS.

Treatment

Her treatment was immediately started with IVIG 2 mg/kg, which was continued for 5 days. Her recovery was fast with improvement in muscle weakness. On day 7 of illness, she was discharged; she could walk with support and be advised physiotherapy. Power in the limbs gradually improved. She had little residual sequelae at 3 months follow-up post-partum. The patient gradually improved and recovered completely after 6 months.

DISCUSSION

The incidence of GBS is very low during pregnancy [4-6]. But the risk is increased in the post-partum period [7]. It rarely gets complicated if associated with maternal and perinatal morbidity especially when the patient has not been treated properly [4]. The patient should be undergone proper investigations and adequate supportive measures by the clinicians. The cornerstone of management of GBS in the postpartum period is access to IVIG therapy [8].

GBS is a neurological disorder resulting in muscle paralysis, which is symmetrical [9]. Most of the patients are complaining about numbness, paresthesias, or other sensory changes. Paresthesias start from the toes and fingertips, and then progress upwards, but do not extend beyond the wrists or ankles [10].

The above study revealed that there was a pain in both lower limbs below the knee joint. However other studies explained in various patients, the pain is most severe in the shoulder girdle, back, buttocks, and thighs [11]. Studies show pain occurs even with the slightest movement. The nature of the pain is often described as throbbing or aching type [12].

Every age group people can be affected by GBS. The disease is vulnerable to both males as well as females equally. The exact cause of Guillain-Barre syndrome is unknown. Many researchers found that around 60% of GBS cases have followed a lung infection or a gastrointestinal infection [12]. The microorganisms such as *Campylobacter jejuni*, influenza virus, Cytomegalovirus, Epstein-Barr virus, mycoplasma, and HIV are strongly associated with GBS [13]. Patients with surgical history and anesthesia may trigger the syndrome. Very few cases are reported due to vaccination entities [14].

The signs and symptoms of GBS remain over hours, days, or weeks. It has been noticed that most of the patients tend to reach the stage of the highest weakness within the first 2 weeks after symptoms have started, and by the 3rd week of illness 90% of patients become to get rid of the symptoms. The most typical manifestation of the disease begins with ascending paralysis [15]. The weakness starts in the feet, hands and migrating upwards to the trunk while some subtypes present with a change in sensation or pain and dysfunction of the autonomic nervous system.

GBS can be life-threatening, especially when the autonomous nervous system or respiratory muscles is involved. In severe cases of GBS, we found loss of autonomic function with wide fluctuations of blood pressure and sinus tachycardia even cardiac arrhythmias [11]. It can sometimes be really difficult to distinguish the symptoms of GBS from other nervous system disorders. The following two examinations are usually done to confirm the diagnosis: a)

Nerve conduction studies test that measures nerve b) Lumbar puncture test which shows a higher level of proteins with a normal cellular count [16].

During pregnancy or in the post-partum period if GBS occurs, the risks of maternal mortality increase up to 7%. Around 20% of patients are disabled within 1 year [1]. After childbirth, there is an increase in cellular immunity and a decrease in humoral immunity, which is due to the pro-inflammatory cytokine surge in the post-partum period [17]. The study conducted by Fernando, et al. shows the worsening condition of GBS in the post-partum period due to an increase in delayed-type of hypersensitivity [18]. Similarly, another study conducted by Silva, et al. had mentioned a case of GBS, which was diagnosed at 15 weeks of pregnancy and aggravated in the postpartum period [19].

Given the evidence of immune dysfunction in GBS, the favourable outcome with full recovery has been seen in 70%-80% of patients who have been treated with plasma exchange and Intravenous Immunoglobulin (IVIG) [20]. Earlier the IVIG was introduced for the treatment of auto-immune thrombocytopaenia and chronic inflammatory demyelinating polyneuropathy. The role of IVIG in GBS was reported in 1988 which led to the first randomized controlled trial. Various studies including meta-analysis resulted in higher efficacy and cost-effectiveness of IVIG therapy in GBS. The randomized control trials show IVIG has a lesser adverse effect, hence preferred over plasma exchange therapy [20].

The study conducted by Bahadur, et al. reported a 25-year-old multigravida at 21 weeks of pregnancy with successful maternal and fetal outcomes [1]. A similar study carried out by Goyal, et al. found to be successful management of a primigravida presenting at 26 weeks gestation with plasmapheresis [21].

CONCLUSION

Our case is quite different from other studies as the case was reported to us after 45 days of the post-partum period and by administration of IVIG in the meantime, the case was successfully recovered. Clinicians should have a high index of suspicion in the case during pregnancy as well as after childbirth during the post-partum period complaining of muscle weakness, general malaise, tingling sensation over fingers, and breathlessness in the context of recent diarrheal episodes or viral infection. An early diagnosis with multi-disciplinary supportive measures helps in improving the prognosis for both the mother and the fetus.

DECLARATIONS

Conflicts of Interest

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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