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# Management of Guillain-Barré Syndrome with Respiratory Distress in a Pregnant Woman: A Case Report

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**ABSTRACT**

Guillain-Barré Syndrome (GBS) is a rare neurological disorder characterized by the immune system's attack on the peripheral nerves. It is typically preceded by an infection, such as a respiratory or gastrointestinal infection, although the exact cause is still unknown. While GBS can occur in anyone, its occurrence during pregnancy poses unique challenges and considerations. GBS in pregnancy is relatively uncommon, but it is a critical condition that requires careful management due to the potential risks to both the mother and the developing fetus. Pregnant women with GBS may present with a variety of symptoms, including muscle weakness, tingling sensations, and loss of reflexes. These symptoms often start in the legs and can progress to the arms and upper body. Early diagnosis and early definitive treatment has promising outcome for GBS in pregnancy. We report this case to review management of GBS in pregnancy.

**Keywords**

Guillain-Barré Syndrome, Respiratory Distress, Pregnant Woman

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## INTRODUCTION

GBS is a rare neurological disorder characterized by the body's immune system mistakenly attacking the peripheral nerves. Early diagnosis and treatment of Guillain-Barré syndrome (GBS) in pregnancy is crucial to ensure the well-being of both the mother and the developing fetus. GBS can occur in any trimester of pregnancy and post-partum period but particularly in third trimester and first 2 weeks post-partum. Some cases may present to unsuspecting clinicians, and who may ascribe some of the early symptoms to the pregnancy, with resultant delays in diagnosis and treatment. Such delays have been associated with poorer outcomes.[1] The accuracy of assessment from medical history taking and physical examination is the key of early diagnosis. The classical clinical weakness of GBS is ascending and symmetrical. The lower limbs are usually involved before the upper limbs. Proximal muscles may be involved earlier than the more distal ones. Trunk, bulbar, and respiratory muscles can be affected as well. Our patient came with classical symptoms of GBS: weakness in the distal extremities, followed by numbness in the palms of her hands and soles of her feet, and progressively unable to lift the arms and legs, with history of pulmonary infections symptoms several days before. It is fit with the classical symptoms and easier to us to diagnose.[2]

## CASE

A 28-year-old pregnant woman at 28-29 weeks gestation presenting with weakness in all four limbs for 10 days prior to hospital admission. The patient initially experienced weakness in the distal extremities, followed by numbness in the palms of her hands and soles of her feet. The weakness progressively worsened, rendering

her unable to lift her arms and legs. Ten days prior to admission, she also complained of fever and productive cough, but had no complaints of diarrhea. The patient was initially admitted to a primary hospital for 5 days, but due to lack of improvement, she was referred to a secondary hospital. On the third day of treatment at the secondary hospital, she developed symptoms of respiratory distress, difficulty swallowing, and slurred speech, leading to her referral to a national referral hospital.

Upon physical examination, the patient was conscious, normotensive, tachycardic at 123 beats per minute, tachypneic at 30 breaths per minute, and had oxygen saturation of 98% with 10 LPM of Non-rebreathing mask supplemental oxygen. Motoric strength was graded 2 out of 5 in all extremities, with slightly decreased sensory function and no lateralization. Laboratory findings showed leukocytosis of 22,170, normal electrolyte values, normal random blood glucose level, mild metabolic acidosis, and a right-sided bronchopneumonia on chest X-ray. Based on these clinical findings, the patient was diagnosed with impending respiratory failure on acute polyneuropathy et causa Guillain-Barré Syndrome type of Acute Inflammatory Demyelinating Polyradiculoneuropathy (AIDP) with differential diagnosis type of Acute Motor Sensory Axonal Neuropathy (AMSAN), and G2P1A0 pregnancy at 28-29 weeks.

The patient was admitted to the intensive care unit (ICU) and immediately started on intravenous immunoglobulin (IVIG) therapy 0,4 gr/kg/day, antibiotics therapy with ceftriaxone, metronidazole, and azithromycin, intravenous dexamethasone 6 mg/ 12 hours for lung maturation, per oral N-acetylcysteine, and close fetal monitoring by obstetrician. By the fourth day of intensive care, the patient's respiratory distress had improved, and motoric strength gradually improved. Complete blood count, electrolyte levels, and arterial blood gas analysis were within normal ranges. Subsequently, the patient was weaned off oxygen support and transitioned to nasal cannula oxygen therapy, and transferred to a semi-intensive care unit for further management. The fetal was in good condition, and there was no sign of impartu.

## DISCUSSION

Respiratory involvement is a very important sign of emergency in GBS because it can affects by weakening the respiratory muscle. Almost 40% cases of GBS have respiratory weakness : dyspnea on exertion, shortness of breath, difficulty swallowing, slurred speech, and one third of them needs mechanical ventilator because of respiratory failure, but it can be avoided if the physician can do early diagnosis and early treatment. Early prediction of decline in respiratory function and progression to mechanical ventilation can be obtained by a combination of clinical variables, including neck muscle weakness, single breath count, and bulbar weakness.[3] The absence of electrodiagnostic criteria must not preclude a patient from being managed as GBS, as according to the Brighton criteria, there is allowance for clinical diagnosis.[1]

Table 1. Brighton Diagnostic criteria for GBS[4]

| Brighton Diagnostic Criteria for GBS | | | | |
|---|---|---|---|---|
| Symptoms | 1 | 2 | 3 | 4 |
| Bilateral and flaccid weakness of limbs | + | + | + | +/- |
| Decreased or absent deep tendon reflexes in weak limb | + | + | + | +/- |
| Monophasic course and time between onset-nadir 12 hours to 28 days | + | + | + | +/- |
| Absence of alternative diagnosis for weakness | + | + | + | +/- |
| CSF cell count <50/mL | + | +/- | - | +/- |
| CSF protein concentration >60mg/dL | + | +/- | - | +/- |
| Nerve conduction study findings consistent with one of the subtypes GBS | + | +/- | - | +/- |

The management of GBS in pregnancy is similar to that in nonpregnant individuals and involves treatments such as intravenous immunoglobulin (IVIG), plasmapheresis, and ventilator support if necessary. Studies have shown that immunomodulation with IVIG and plasmapheresis can significantly improve treatment outcomes, with around 70-80% of patients achieving full recovery. Our patient received care in the Intensive Care Unit, without ventilatory and circulatory support and showed rapid clinical improvement, after immediate IVIG therapy.[1,3,5]

Intravenous immunoglobulin (IVIG) is generally considered safe for pregnant women and their fetuses when used appropriately. It categorized class C in US FDA pregnancy. Derived from pooled human plasma, IVIG helps regulate the immune response and is commonly used to treat immune-mediated disorders and recurrent pregnancy loss associated with immunological factors. Research and clinical experience indicate that IVIG treatment during pregnancy is well-tolerated and does not significantly increase risks for the mother or fetus. Potential side effects are rare and mild, including headaches, fever, nausea, and joint pain. Before initiating IVIG, healthcare providers carefully assess the potential benefits and risks based on the specific condition and its severity. Close monitoring of pregnant women receiving IVIG is essential, with regular evaluations of maternal and fetal well-being. Individual circumstances should be considered, and open communication with healthcare providers is crucial for informed decision-making and optimizing outcomes for both mother and fetus.[6]

In pregnant women with Guillain-Barré syndrome (GBS), there is an increased risk of neurological deficits, respiratory failure (35% rate), and maternal mortality (10-35% rate). However, termination of pregnancy or cesarean delivery are still unclear and does not appear to improve outcomes or aid in the mother's recovery. Previous studies have shown that normal vaginal delivery is possible and uterine contraction is preserved in GBS patients. Despite the lack of established guidelines, the mode of delivery and anesthesia management should be based on the patient's clinical condition at the time of delivery.[7,9]

A sample of conservative therapy for GBS in pregnancy has done before by Fernando, et al (2016), a 22-year-old primigravida who presented at 36 weeks of the period of gestation (POG), with complaints of bilateral progressive lower limb numbness and weakness for 2 weeks duration. Magnetic resonance imaging of the brain was done to exclude other possible causes. Diagnosis of GBS was made according to the Brighton criteria, which our patient falls into Level 2. She received intensive care management. The patient improved rapidly without any specific management. She went to labor spontaneously and delivered a healthy baby with a birth weight of 2.8 kg at 38 weeks of POG. She continued to receive supportive therapy and improved significantly.[5]

The management of Guillain-Barré syndrome (GBS) in pregnancy often requires a multidisciplinary approach involving various healthcare professionals. Due to the complex nature of GBS and its potential impact on both the mother and the fetus, a team of specialists, including neurologists, obstetricians, neonatologists, and anesthesiologists, may collaborate to provide comprehensive care. This multidisciplinary approach allows for a holistic evaluation of the patient's condition, considering both the neurological aspects of GBS and the unique challenges of pregnancy.[1,2]

The involvement of a neurologist is crucial in diagnosing and monitoring GBS progression during pregnancy. They can assess the severity of the disease, guide treatment decisions, and provide expert neurological care. Obstetricians play a vital role in managing the pregnancy and ensuring the well-being of both the mother and the fetus. They consider factors such as the gestational age, maternal health, and GBS progression to determine the optimal timing and mode of delivery. Neonatologists are involved in assessing and managing the newborn baby's health, particularly if the mother's GBS status might affect the baby. Anesthesiologists contribute their expertise in determining the most appropriate anesthesia options during delivery, considering the potential risks associated with GBS. Together, this multidisciplinary team aims to provide the best possible care for both the mother and the baby.[1,8,9]

The timing of delivery in cases of GBS during pregnancy is a critical decision that should be made based on careful evaluation of the patient's condition. Factors such as the severity and progression of GBS, maternal stability, fetal well-being, and gestational age are taken into account. In general, delivery may be recommended if there is a risk of worsening maternal neurological function or if fetal compromise is suspected. However, each case is unique, and individualized management plans should be developed based on the specific circumstances. The multidisciplinary team collaborates to assess the risks and benefits, considering the optimal timing and mode of delivery to ensure the best possible outcomes for both the mother and the baby. Close

monitoring and regular communication among the healthcare professionals involved are essential to make informed decisions regarding delivery in GBS cases during pregnancy.[1,3,8,9]

## CONCLUSION

In conclusion, early diagnosis and prompt initiation of intravenous immunoglobulin (IVIG) treatment for Guillain-Barré syndrome (GBS) during pregnancy have shown promising results in terms of maternal and fetal outcomes. This approach, coupled with a multidisciplinary management plan involving various healthcare professionals, allows for comprehensive care and optimized treatment strategies. However, further research in the form of larger studies is warranted to validate the efficacy and safety of early diagnosis and early IVIG treatment in GBS during pregnancy. By expanding our knowledge and understanding of this condition, we can continue to enhance the care provided to pregnant individuals affected by GBS and improve their overall outcomes.

## DECLARATIONS

The research has received approval from the Faculty of Medicine, Universitas Padjadjaran and Ethics Committee.

## CONSENT FOR PUBLICATION

The Authors agree to publication in Journal of Society Medicine.

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## COMPETING INTERESTS

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## AUTHORS' CONTRIBUTIONS

All authors are responsible for conceptualization, manuscript preparation, manuscript editing, and manuscript assurance.

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