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Research Article

# Analysis Of Clinical And Investigatory Profile In The Management And Outcome Of Guillain–Barré Syndrome

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## ABSTRACT

**Background:** Guillain–Barré Syndrome (GBS) is an acute, immune-mediated neuropathy that presents with rapidly progressive limb weakness. Although effective therapies are available, variations in clinical profile and prognosis remain evident across populations.

**Objective:** To explore the clinical manifestations, electrophysiological features, and prognostic factors in GBS, and to evaluate treatment outcomes in patients admitted to a tertiary hospital in South India.

**Methods:** This prospective observational study was carried out at Government Chengalpattu Medical College between July 2023 and June 2024. Forty-seven patients who satisfied the Brighton 2011 diagnostic criteria for GBS were included. Demographic details, antecedent illness, neurological findings, CSF results, and electrophysiological subtypes were recorded. Functional outcomes were assessed using Hughee's disability scale at admission, discharge, and after three months.

**Results**: The mean age of patients was 45 years, with a slight predominance of males (53%). Ascending weakness was the most frequent initial complaint (70%). Cranial nerve palsies were seen in 34%, while 17% experienced autonomic disturbances. Demyelinating forms accounted for 55% of cases, followed by mixed and axonal patterns. Intravenous immunoglobulin (IVIg) was administered to 43% and produced better outcomes compared with plasma exchange or steroid-based regimens. Overall mortality was 10.6%, mainly among older individuals and those with respiratory failure. At three months, 51% had regained independent walking ability.

**Conclusion**: Advanced age, respiratory involvement, and autonomic dysfunction were strong predictors of poor outcome in GBS. IVIg remains the preferred therapeutic option, emphasizing the importance of early recognition and intervention.

***Keywords***: *Guillain–Barré Syndrome (GBS), plasma exchange, significant.*

## INTRODUCTION

Guillain–Barré Syndrome (GBS) is a leading cause of acute flaccid paralysis worldwide. The disorder is characterized by symmetrical weakness, loss of reflexes, and variable sensory or autonomic features. Reported global incidence ranges between 1 and 2 cases per 100,000 individuals annually. The main electrophysiological patterns include acute inflammatory demyelinating polyneuropathy (AIDP), acute motor axonal neuropathy (AMAN), and acute motor–sensory axonal neuropathy (AMSAN).

Despite the use of intravenous immunoglobulin (IVIg) and plasma exchange (PLEX) as standard treatments, significant variation persists in disease expression and recovery. Mortality, often linked to respiratory insufficiency or autonomic disturbances, remains higher in developing countries. This study aimed to describe the clinical spectrum of GBS, highlight prognostic indicators, and evaluate the outcomes of therapeutic interventions in patients from a tertiary-care center in Tamil Nadu, India.

## MATERIALS AND METHODS

Study design: Prospective observational study
Location: Government Chengalpattu Medical College & Hospital, Tamil Nadu
Study period: July 2023 – June 2024
Sample size: 47 patients with confirmed GBS

Eligibility: Patients fulfilling Brighton 2011 diagnostic criteria for GBS were included. Those with acute myelopathies, myasthenia gravis, botulism, porphyria, or toxic neuropathies were excluded.

Data collection: Information was recorded regarding demographic profile, antecedent illness, neurological examination, cerebrospinal fluid characteristics, nerve conduction study findings, and treatment received. Functional status was graded using Hughee's disability scale at admission, discharge, and three months.

Statistical analysis: Associations were tested using chi-square statistics. A p-value $<0.05$ was considered statistically significant.

## RESULTS

Table 1. Demographic Characteristics (n=47)

| Variable | Frequency | Percentage |
|---|---|---|
| Mean Age (years) | 45.4 ± 13 | - |
| Male | 25 | 53.2% |
| Female | 22 | 46.8% |

Table 2. Clinical Profile

| Feature | Frequency | Percentage |
|---|---|---|
| Motor weakness (initial complaint) | 33 | 70.2% |
| Cranial nerve involvement | 16 | 34.0% |
| Respiratory muscle weakness | 6 | 12.8% |
| Autonomic dysfunction | 8 | 17.0% |
| Sensory symptoms | 18 | 38.3% |

Table 3. Electrophysiological Subtypes

| Subtype | Frequency | Percentage |
|---|---|---|
| Demyelinating (AIDP) | 26 | 55.3% |
| Axonal (AMAN/AMSAN) | 7 | 14.9% |
| Mixed | 14 | 29.8% |

Table 4. Treatment Modalities and Outcomes

| Treatment | n (%) | Good Recovery | Mortality |
|---|---|---|---|
| IVIg alone | 20 (42.6%) | 90% | 5% |
| IVIg + Steroids | 19 (40.4%) | 74% | 11% |
| PLEX ± IVIg | 7 (14.9%) | 70% | 14% |
| Steroids alone | 1 (2.1%) | - | - |

Table 5. Predictors of Poor Outcome

| Predictor | p-value | Significance |
|---|---|---|
| Age >60 years | 0.01 | Significant |
| Respiratory muscle weakness | 0.001 | Highly significant |
| Low muscle power (UL/LL grade 1–2) | 0.02 | Significant |
| Autonomic dysfunction | 0.001 | Highly significant |

## DISCUSSION

The present analysis demonstrated that GBS affected individuals predominantly in middle age, with a modest male predominance. AIDP emerged as the most frequent electrophysiological subtype. Respiratory failure, though less common, carried a significant risk for mortality. Compared with Western data, the mortality rate in this cohort was higher, which could reflect delays in seeking medical attention and limited intensive care support. The relatively favorable response to IVIg in our series aligns with the results of prior clinical trials. Autonomic dysfunction, while not universal, was another critical factor influencing outcomes.

## CONCLUSION

Guillain–Barré Syndrome remains a potentially life-threatening but treatable neurological disorder. Recognition of prognostic indicators such as advanced age, respiratory involvement, and autonomic instability is crucial. IVIg therapy produced the most consistent recovery outcomes in this study and should be prioritized in management strategies.

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