Clinical Profile and Treatment Outcomes of Patients of Guillain-Barre Syndrome in Tertiary Care Centre.

Makarand M. Kanjalkar[1]*, Mukund K. Sasturkar[2], Sharad B. Biradar[3]

Abstract:

The incidence of GBS is best known for the United States and Europe, with a consistent annual incidence of 0.84 to 1.9 cases/100000 population. Men are 1.5 times more commonly affected than women. Despite improved recognition and treatment, GBS continues to be a severe disease. Aim of study is to study Clinical Profile Guillain Barre Syndrome. To observe Outcomes of different treatment options of Guillain-Barre Syndrome patients. Materials & methods-From: This prospective observational study was conducted on patients with GBS (diagnosed using a combination of clinical criteria, NCS and CSF analysis) admitted in the wards and intensive care units of a tertiary care hospital in central part of India for a period of one years during Jan 2019 to Dec 2019.

Results: Out of these 20 patients, 14(70.0%) patients were males and 06(30.0%) patients were females. The Mean age group of the study patients was 35.2 years with Standard deviation of 22.31 years. 08(40.0%) of patients were given IVIg, 07(35.0%) of patients given IG and Steroids, 05(25.0%) of patients given Steroids, 04(20.0%) patients were on ventilator and 20(100.0%) of patients were on supportive treatment. The majority of patients i.e 08(40.0%) were able to walk with Support, 04(20.0%) of patients able to walk without support of stick, 04(20.0%) of patients confined to bed or chair and 04(20.0%) of patients require ventilator.

Conclusions: Guillain-Barré syndrome (GBS) can occur at any age group with a higher male preponderance. The common symptoms were weakness, Sensory Symptoms and respiratory system. Nerve conduction studies should always be done in suspected cases of GBS. The common GBS variants according to nerve conduction studies were Acute Motor Axonal Neuropathy (AMAN).

Keywords: Guillain-Barré syndrome, Sensory Symptoms and respiratory system.

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Introduction:

Guillain-Barré syndrome (GBS) also known as Acute Inflammatory Demyelinating Polyneuropathy (AIDP) is characterized by progressive symmetric muscle weakness with reduced or absent deep tendon reflexes. GBS occurs world over with an incidence of 1 to 2 cases per 1,00,000 population per year [1]. The incidence of GBS is best known for the United States and Europe, with a consistent annual incidence of 0.84 to 1.9 cases/100000 population [2]. Men are 1.5 times more commonly affected than women. Despite improved recognition and treatment, GBS continues to be a severe disease. One-quarter of patients will require mechanical ventilation for respiratory failure or airway protection and 3-11% will die of GBS related complications [3,4,5].

It presents as progressive, flaccid, symmetrical muscle weakness with reduced or absent reflexes. It is having a variable presentation from mild disease to involvement of all four limbs with respiratory muscles paralysis, cranial nerves and even autonomic nervous system affection [6]. The progressive ascending flaccid paralysis reaches a nadir between 7 - 28

***Corresponding Author:** Makarand M. Kanjalkar
Address:[1]*Head, Department of Neurology, Manik Hospital and Research Centre, Aurangabad [MS], India.
[2]Head, Department of Medicine, Manik Hospital and Research Centre, Aurangabad [MS], India.
[3]Head, Department of Critical Care, Manik Hospital and Research Centre, Aurangabad [MS], India.
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days [7].

Diagnosis of GBS is mostly clinical. CSF examination shows albumin cytological if available is of use [6]. Prior infection such as upper respiratory tract infection is well-established predating event in the development of GBS by 10-14 days [5]. Therapeutic plasma exchange (TPE) and intravenous immunoglobulin (IVIg) are effective immunotherapies for adult and paediatric patients with GBS if given during the first few weeks of the disease [8,9] along with the diligent supportive care to minimize the risk of mortality and clinical risk and eventually improving the outcomes. Physical therapy is considered as integral part of the supportive management in reducing the incidence of complications such as respiratory complications, deep vein thrombosis (DVT), pain management and delayed mobilization [10]. However, the data regarding clinico-epidemiological profile and outcome of the patients with GBS from developing countries are limited. Identifying patients with GBS having poor prognostic factor aids in proper utilization of the limited resources while managing the patients with GBS. To fulfill this unmet need in the management of patients with GBS in resource-limited countries, we have conducted a prospective study among GSB patients.

Aim & Objective of Study:

To study Clinical Profile Guillain-Barre Syndrome
To observe Outcomes of different treatment options of Guillain-Barre Syndrome patients.

Material and Methods:

Study Design and Study Population: This prospective observational study was conducted on patients with GBS (diagnosed using a combination of clinical criteria, NCS and CSF analysis) admitted in the wards and intensive care units of a tertiary care hospital in central part of India for a period of one years during Jan 2019 to Dec 2019.

Sample Size and Sampling technique: A total of 20 GSB patients were enrolled in present study using convenience sampling.

Inclusion and Exclusion Criteria:

Inclusion Criteria:

1. All patients of all age and gender with GBS admitted to this hospital.
2. Patients who have not received IvIg or plasmapheresis prior to admission.
3. Patients who willing to participate in study.

Exclusion Criteria:

1. Patients diagnosed with GBS at an outside hospital and who have been referred after onset of respiratory muscle weakness for assisted ventilation.
2. Patients treated with IvIg or plasmapheresis at an earlier hospital & then referred for further management.

Nerve conduction Study (NCS) and C.S.F examination results were documented in a structured questionnaire. All patients were watched for respiratory insufficiency and those who developed respiratory paralysis were transferred to ICU and given respiratory assistance. Signs of impending respiratory failure included deterioration in forced vital capacity (FVC), declining maximal respiratory pressures and hypoxemia caused by atelectasis.

Outcome Measures:

The primary outcome of the study was the proportion of patients who had in hospital mortality, and the secondary outcome was a clinico-epidemiological profile and functional outcome of patients with Guillain Barre syndrome. Functional outcome of the patients was assessed by Hughes motor scale at the time of discharge. Hughes motor scale ranges from 0 to 6 where o is asymptomatic, 1 is having mild signs or symptoms but able to run, 2 is able to walk unaided for 5 meters, 3 is able to walk 5 meters with support, 4 is bedridden or chair bound, 5 is requiring ventilator assistance & 6 death of patient.

Statistical Analysis: Data from the proforma were filled into MS Excel 2010 and analyzed by SPSS 25 version. For descriptive analysis frequency, percentage, mean and standard deviation were used & presented in tabular form.

Observations and Results:

In present study a total of 20 Guillain-Barre Syndrome patients were studied.

Table 1: Demographic Profile and symptoms of patients

	Number of patients (%)
Gender	
Male	14(70.0%)
Female	06(30.0%)
Age Group	
≤20 years	06(30.0%)
31-60 years	11(55.0%)
>60 years	03(15.0%)
Mean±SD	35.2±22.31 years
Symptoms	
Weakness	17(85.0%)
Pain	01(5.0%)
Difficulty in Walking	01(5.0%)
Sensory Symptoms	08(40.0%)
Respiratory Symptoms	05(25.0%)
Bowel & Bladder Symptoms	02(10.0%)
Cranial Nerves Symptoms	01(5.0%)

Out of these 20 patients, 14(70.0%) patients were males and 06(30.0%) patients were females. The Mean age group of the study patients was 35.2 years with Standard deviation of 22.31 years. Maximum percentage of patients was in the age group of 31-60 years, 06(30.0%) of patients were having age ≤20 years and 03 (15.0%) of patients age more than 60 years.

The most common initial symptom was weakness 17 (85.0%), 01(5.0%) patients reported pain and difficulty in walking. 08 (40.0%) % of patients had sensory involvement. Respiratory Symptoms were noted in 05(25.0%) of patients and 02(10.0%) patients had Bowel & Bladder Symptoms. 1(5.0%) of patients had cranial nerve involvement.

Table 2: Treatment of patients

Treatment	Number of patients (%)
IVIg	08(40.0%)
IG + Steroids	07(35.0%)
Steroids	05(25.0%)
Ventilator	04(20.0%)
Supportive	20(100.0%)

08(40.0%) of patients were given IVIg, 07(35.0%) of patients given IG and Steroids, 05(25.0%) of patients given Steroids, 04(20.0%) patients were on ventilator and 20(100.0%) of patients were on supportive treatment.

Table 3: Varient of GBS and Hughes scoring system in GBS of patients

Particular	Number of patients (%)
Varient of GBS	
Acute Motor Axonal Neuropathy	13(65.0%)
Acute Motor Sensory Axonal Neuropathy	06(30.0%)
Miller Fischer Syndrome	01(5.0%)
Hughes scoring system in GBS	
Healthy	00
Minor symptoms/ signs of neuropathy Able to walk	04(20.0%)
without support of stick Able to walk with Support	08(40.0%)
confined to bed or chair	04(20.0%)
Require Ventilator	04(20.0%)
Death	00

Nerve Conduction Study Finding. As shown in Table 3 the common GBS variants according to nerve conduction studies were Acute Motor Axonal Neuropathy (AMAN) 13((65%) of patients and Acute Motor Sensory Axonal Neuropathy (AMSAN) 06 (30%) of patients. However, the nerve conduction studies of 01(5.0%) of the study population were showing sensory neuropathy in patient of Miller Fischer Syndrome (MFS).

Outcome of the Study Population. As shown in table 3, among 20 patients with GBS according to Hughes scoring system in GBS, all the patients were survived. The majority of patients i.e 08(40.0%) were able to walk with Support, 04(20.0%) of patients able to walk without support of stick, 04(20.0%) of patients confined to bed or chair and 04(20.0%) of patients require ventilator. The mean duration ventilator was 37.5 days with standard deviation of 42.4 days, minimum 10 days and maximum 110 days required ventilator. After 3 months of discharge all patients were able to walk.

Discussion:

In present study, Out of these 20 patients, 14(70.0%) patients were males and 06(30.0%) patients were females. Similar findings were noted by Sundar K et al [11], 76% of GBS patients were males and 24% were females. In present study, the Male: Female ratio was 2.33:1.00. An Italian study by Ropper AH [12] found a higher incidence of GBS in males with a male: female ratio of 1.88:1.00. Also the study done by Dhadke SV et al [13] the ratio was 1.5:1. Most of the studies that have looked at the epidemiology of GBS have noticed that this disease seems to occur more often in males than in females. GBS is precipitated by a viral (flu-like illness) or bacterial (Campylobacter jejuni) infection for which males have a higher risk of

exposure due to a greater level of social activity compared to females.

The Mean age group of the study patients was 35.2 years with Standard deviation of 22.31 years. Maximum percentage of patients was in the age group of 31-60 years, 06(30.0%) of patients were having age ≤20 years and 03 (15.0%) of patients age more than 60 years. As GBS affects all age groups. Anto Ignat Stany M et al [14] had found that most of the patients (54.2%) in the age group 40-60 years with a range of 20 to 96 years. A Swedish study described GBS to have two peaks, one between 20-24 years and the next between 70-75 years [15]. A north Indian study, most patients were in the age group 30-40 [13]. This difference is likely due to various genetic, ethnic, cultural, social differences between the different study populations.

In present study the most common initial symptom in GBS patient was weakness i.e.17 (85.0%). Also Sundar K et al [11] found that the most common presenting signs and symptoms were motor weakness.
In this present study Respiratory Symptoms were noted in 05(25.0%) of patients and Respiratory symptoms was seen as a presenting complaint in 20% of the patients by Sundar K et al [11]. This correlated with the incidence of respiratory failure that has been previously documented with GBS (10-30%) [16].

In present study of GBS patients, 08(40.0%) of patients were given IVIg treatment, 07(35.0%) of patients given IG and Steroids, 05(25.0%) of patients given Steroids, 04(20.0%) patients were on ventilator and 20(100.0%) of patients were on supportive treatment. Whereas Sundar K et al [11] found that, most of the GBS patients were administered IVIg (84%). Habib R et al [17] study GSB patients i.e. 77.6% who received IVIg.
The common GBS variants according to nerve conduction studies were Acute Motor Axonal Neuropathy (AMAN) 13((65%) of patients and Acute Motor Sensory Axonal Neuropathy (AMSAN) 06 (30%) of patients. However the nerve conduction studies of 01(5.0%) of the study population were showing sensory neuropathy in patient of Miller Fischer Syndrome (MFS). Whereas Suhas G Kumbhar et al [18] found that AMAN i,e acute motor axonal Neuronopathy was observed in 23.07% of patients and AMSAN i.e, acute motor sensory axonal Neuronopathy in 19.23% of patients. Also Similar results were observed in the study conducted by Ropper et al [12], were 63% had AIDP, 23% had AMAN and AMSAN was present in 14% patients. Saroj Kumar Bhagat et al [19] Common GBS variants according to nerve conduction studies were AIDP (19.4%) and AMSAN (19.4%). AMSAN was the predominant type [17]. Whereas AMAN occurs more frequently in East Asia (China and Japan) [20].
All the, GSB patients were survive in the present study, whereas Saroj Kumar Bhagat et al [19] found that 90% of the patients were survived.

Among 20 patients with GBS according to Hughes scoring system in GBS, all the patients were survived. The majority of patients i.e 08(40.0%) were able to walk with Support, 04(20.0%) of patients able to walk without support of stick, 04(20.0%) of patients confined to bed or chair and 04(20.0%) of patients require ventilator. Saroj Kumar Bhagat et al [19] found that the majority of patients were able to walk unaided for 5 meters (89.6%).

Conclusion:

Guillain-Barré syndrome (GBS) can occur at any age group with a higher male preponderance. The common symptoms were weakness, Sensory Symptoms and respiratory system. Nerve conduction studies should always be done in suspected cases of GBS. The common GBS variants according to nerve conduction studies were Acute Motor Axonal Neuropathy (AMAN). Majority of patients were administrated using Steroids, IVIg and IG and Steroids. According to Hughes scoring system in GBS, all the patients were survived. The majority of patients were able to walk 3 months after discharge. No mortality was reported.

References:

Yuki N, Hartung H-P. Guillain–Barré Syndrome. N Engl J Med 2012 ; 366(24) :2294304.
McGrogan A, Madle GC, Seaman HE, de Vries CS. The epidemiology of Guillain-Barre´ syndrome worldwide: A systematic literature review. Neuroepidemiology. 2009;32(2):150163.
Rees JH, Thompson RD, Smeeton NC, Hughes RAC. Epidemiological study of Guillain-Barre´ syndrome in south east England. J Neurol Neurosurg Pscyh. 1998;64(1):74-77.

Guillain-Barre´ Study Group. Guillain-Barre´ syndrome: an Italian multicentre case-control study. Neurol Sci. 2000;21(4):229-234.

Fa¨rkkila¨ M, Kinnunen E, Haapanen E, Livanainen M. Guillain Barre´ syndrome: quantitative measurement of plasma exchange therapy. Neurology. 1987;37(5):837-840.

Sharma G, Sood S, Sharma S. Seasonal, Age & Gender Variation of Guillain Barre Syndrome in a Tertiary Referral Center in India. Neuroscience & Medicine2013; 4: 23-28.

Alshekhlee A, Hussain Z, Sultan B, Katirji B. Guillain-Barré syndrome: incidence and mortality rates in US hospitals. Neurology 2008; 70(18):1608-13.

Hughes RA, Swan AV, Raphaël JC, Annane D, van Koningsveld R, van Doorn PA. Immunotherapy for GuillainBarré syndrome: A systematic review. Brain 2007; 130 (Pt 9): 2245-57.

Raphaël JC, Chevret S, Hughes RA, Annane D. Plasma exchange for Guillain-Barré syndrome. Cochrane Database Syst Rev 2012; 7: CD001798.

Hughes R A, Wijdicks EF, Benson E, Cornblath DR, Hahn AF, Meythaler JM, et al. Supportive care for patients with Guillain Barré syndrome. Arch Neurol 2005; 62 : 1194-8.

Sundar K, Vasanthan K, Vengada krishnan K, Satyamurthy P, Sudhakar MK. Clinical Profile of Guillain-Barre Syndrome in a Tertiary Care Center. Int J Sci Stud 2016;4(9):27-30.

Ropper AH. Guillain- Barre syndrome variants in Emilia – Ramagna, Italy, 1992-93: Incidence, clinical features, and prognosis. J Neurol Neurosurg Psychiatry 1998; 65:218-

Dhadke SV, Dhadke VN, Bangar SS, Korade MB. Clinical profile of Guillain Barre Syndrome. J Assoc Physicians India 2013; 61(3):168-72.

Anto Ignat Stany M, Susan Dsouza, Peter George. Clinical Profile and Outcomes Of Guillain-Barré Syndrome At A Tertiary Care Centre In Southern India. International Journal of Scientific Research. 2018:7(10); 1-3.

Guo-Xin J. GBS in Sweden from clinical epidemiology to public health surveillance. J. Neurol 1996; 75:123-29.

Durand MC, Porcher R, Orlikowski D, Aboab J, Devaux C, Clair B, et al. Clinical and electrophysiological predictors of respiratory failure in GuillainBarré syndrome: A prospective study. Lancet Neurol 2006;5 :1021-8.

Habib R, Saifuddin M, Islam R, Rahman A, Bhowmik NB, Haque MA. Clinical Profile of Guillain Barre' Syndrome-Observations from a Tertiary Care Hospital of Bangladesh. BIRDEM Med J . 2017; 7(1): 38-42.

Suhas G Kumbhar , Suresh K. Kumbhar, Mahesh S. Sale, Rahul kawade. Clinical Profile of childhood Guillian Barre Syndrome- A Retrospective study. International J. of Health care and Biomedical Research, April 2016, 4(3);19-25.

Saroj Kumar Bhagat, Shrey Sidhant, Mukesh Bhatta, Ashish Ghimire and Bhupendra Shah. Clinical Profile, Functional Outcome, and Mortality of Guillain-Barre Syndrome: A FiveYear Tertiary Care Experience from Nepal. Neurology Research International. 2019, 0105.

Kuwabara S. Guillain-Barré syndrome: epidemiology, pathophysiology and management. Drugs 2004; 64(6): 597-610.