

## To Evaluate the Types and Antecedent Events of Guillain-Barre Syndrome

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### Original Research Article

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**Abstract:** Guillain-Barre Syndrome is a monophasic illness; often it is self-limiting. The initial assessment was based on clinical history, detailed neurological examination, routine investigations and special investigations like cerebrospinal fluid analysis and electro diagnostic studies. 80% of Guillain-Barre Syndrome patients recovered smoothly without going for complications. 30% of Guillain-Barre Syndrome patients developed respiratory muscle weakness of varying severity. Prognosis in patients the Guillain-Barre Syndrome linearly varies with severity of electro diagnostic studies.

**Keywords:** Antecedent & Guillain Barre Syndrome.

### **INTRODUCTION**

Guillain-Barre Syndrome is the commonest cause of acquired demyelinating disorders affecting the peripheral nervous system in any part of the world. It is a spectrum of illness of diverse etiology with a common pathological process. It is a non-seasonal illness affecting persons of all age groups.

The severity of Guillain-Barre Syndrome varies from mild weakness to total paralysis and respiratory failure, sometimes leading to death.

Proper understanding of pathology, clinical presentation, appropriate investigations and interventions when needed may save these patients from mortality and severe morbidity

### **INCIDENCE**

The reported incidence of the Guillain-Barre syndrome in Western countries ranges from 0.89 to 1.89 cases (median, 1.11) per 100,000

Non - seasonal, non-epidemic illness, affects persons of all ages [1, 4]

Reports from India and China indicate peak incidence between July and October [2]

The ratio of men to women with the syndrome is 1.78

### **MATERIALS & METHODS**

Guillain-Barre Syndrome is a monophasic illness; often it is self-limiting. The initial assessment was based on clinical history, detailed neurological examination, routine investigations and special investigations like cerebrospinal fluid analysis and electro diagnostic studies.

### **SELECTION OF PATIENTS**

#### **Inclusion Criteria**

- Any patient admitted with features suggestive of flaccid progressive weakness affecting all the four limbs were included
- Any patient admitted with progression of weakness of less than 4 weeks duration was included.
- Any patient admitted with reduced or absent deep tendon reflexes were included

#### **Exclusion Criteria**

- Any patient admitted with features of hypokalemic periodic paralysis.
- Any patient admitted with features of upper motor neuron signs and symptoms
- Any patient admitted with severe protopathic sensory symptoms
- Any patient admitted with history of bite preceding the illness
- Any patient admitted with history of exposure to toxins like organophosphates.
- Any patient with severe terminal illness

- Patients admitted with history of suspected food poisoning
- Patients in whom the weakness progressed for more than 4 weeks

**Number of cases studied:** 50

**Duration of study:** Jan 2016 to July 2017.

Detailed neurological examination including higher mental functions, cranial nerves, motor system, sensory system and autonomic system was done for all 50 patients. Motor powers in these patients were assessed according to Medical Research Council grading.

Autonomic dysfunction was looked for in all these patients. History of dryness of mouth, postural giddiness and defective sweating over the body were specifically asked for.

Blood pressure was routinely taken in lying and sitting posture and if possible in standing posture to bring out orthostatic hypotension. Sympathetic skin response was not done due to technical problem.

Respiratory function tests were done in all patients, every day during hospitalization, including breath-holding time, single breath count, blowing candle at one arm length, chest expansion, Litten's phenomenon.

Likewise, basic investigations like complete blood count, peripheral smear, blood sugar and urea, serum creatinine and electrolytes, erythrocyte sedimentation rate, daily electrocardiogram, chest x-ray were done for all the 50 patients.

Lumbar puncture was done for 42 patients and Cerebro Spinal Fluid was sent for Gram's stain, biochemical and cytological analysis.

Electrophysiological studies were conducted by using the machine RMS ADVANCE TESTING LAB. Nerve conduction studies were done in both upper and lower limbs.

In upper limbs, proximal latency, distal latency, motor nerve conduction velocity, F-response was studied in ulnar, median and radial nerves.

In lower limbs, similarly proximal latency, distal latency, motor nerve conduction velocity, F-response, H-reflex were studied in sciatic, lateral popliteal and posterior tibial nerves.

Sensory conduction velocity was studied in median nerve, ulnar nerve and sural nerve. Electromyography was done with surface electrodes in thenar and hypothenar muscles, quadriceps, calf muscles, and extensor digitorum.

Magnetic Resonance Imaging was done in 4 patients who presented with altered sensorium, sensory disturbance and urinary retention.

## OBSERVATIONS & RESULTS

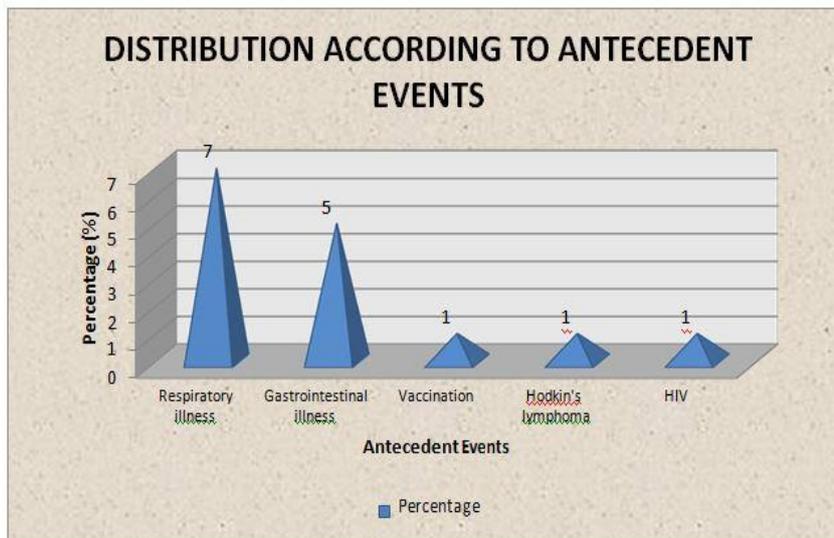
### Antecedent events

7 patients gave history of upper respiratory tract infection preceding the neurological illness. 5 patients gave history of gastroenteritis preceding the illness. 1 patient gave history of vaccination for dog bite preceding the illness.

1 patient was reactive for HIV. 1 patient was found to have generalized lymphadenopathy and mild hepatosplenomegaly, and Fine Needle Aspiration Cytology proved to be Hodgkin's lymphoma. Remaining patients had no antecedent event.

**Table-1: Antecedent events**

Antecedent Events	No. of Patients	Percentage
Respiratory illness	7	14.0
Gastrointestinal illness	5	10.0
Vaccination	1	2.0
Hodkin's lymphoma	1	2.0
HIV	1	2.0



Graph-1: Pyramid diagram showing distribution according to antecedent events

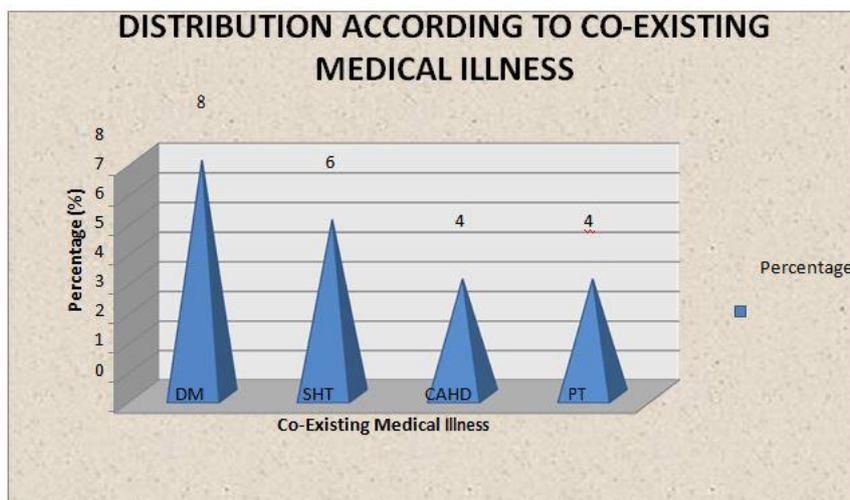
**CO-EXISTING MEDICAL ILLNESS**

4 patients were on treatment for diabetes mellitus, 3 patients were on treatment for hypertension,

2 patients were on treatment for pulmonary tuberculosis and ischemic heart disease. Remaining patients did not have any co-existing medical illness.

Table-2: Co-existing medical illness

Illness	No. of Patients	Percentage
DM	4	8.0
SHT	3	6.0
CAHD	2	4.0
PT	2	4.0



Graph-2: Pyramid diagram showing distribution according to coexisting medical illness

**DISCUSSION**

**Antecedent infection**

Approximately one third of patients reported a history of an antecedent event. Winter et al reported that over half of GBS patients experience

symptoms of viral respiratory or gastrointestinal infections. Ropper *et al.* [1, 3] also reported a high incidence of 73%. In contrast a study by Kaur *et al.* [5] showed a lower incidence of 32%.

Table-3: Comparison of Antecedent Infection

Name of the study	Percentage
Winer <i>et al.</i> [6]	50
Ropper <i>et al.</i> [1]	73
Kaur <i>et al.</i> [5]	32
Present study	30

### Steroid use

Most of the studies do not recommend the use of steroids. Yet many centers use high dose oral prednisolone or methylprednisolone. In our hospital, we do not use steroids routinely, some patients included in our study, had been treated with steroids outside.

6% (3) of patients on steroids developed peptic ulceration and gastrointestinal bleeding, with delayed recovery.

2% (1) of patients with diabetes mellitus who were put on steroids developed ketoacidosis and turned out with delayed recovery.

In our study, there was no significant difference in the outcome of patients treated with or without steroids, similar to the world literature. A randomized trial of oral prednisolone therapy by Guillain-Barre Syndrome steroid trial group in 1993, showed no benefit. Pangariya *et al.* [7] showed no benefit in Guillain Barre Syndrome. A study by Hughes *et al.* 1978, suggested that steroids might increase the subsequent relapse rate.

### CONCLUSION

80% of Guillain-Barre Syndrome patients recovered smoothly without going for complications.

30% of Guillain-Barre Syndrome patients developed respiratory muscle weakness of varying severity.

Prognosis in patients the Guillain-Barre Syndrome linearly varies with severity of electrodiagnostic studies.

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