PATTERN OF GUILLAIN BARRE SYNDROME - A SOUTH INDIAN STUDY

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Abstract:
Introduction - Guillain Barre Syndrome is characterised by loss of myelin sheath in the absence of neuronal loss. The incidence is increasing in South Indian population. Objective - To study various pattern and etiology of Guillain Barre Syndrome in South Indian population. Methods - We investigated 50 patients at Government General Hospital over a period of 9 months from August 2010. Study included patients with rapidly evolving areflexic motor weakness. History, clinical findings, Neuro Imaging, CSF analysis and Electrophysiological finding were analysed. Secondary causes were also investigated. Results - Guillain Barre Syndrome (GBS) commonly presented in third decade. 60 were associated with gastrointestinal illness, 30 with respiratory illness, 4 with pregnancy. 94 had Lower limb onset, 2 presented as Miller Fischer Syndrome and 4 had bulbar onset. 28 needed Ventilator assistance. Albuminocytological dissociation was noted in 80. Nerve conduction study showed 50 demyelinating, 30 axonal pattern and 20 mixed pattern.
Conclusion - Guillain Barre Syndrome is increasing in south Indian population which most commonly follows gastrointestinal infection against respiratory infection world wide. Among GBS, demyelinating patterns was common which shows good recovery.

Keyword: Guillain Barre Syndrome, demyelinating, axonal

Introduction: Demyelinating diseases: are characterised by loss or attenuation of myelin sheath in the relative absence of neuronal loss. Myelin sheath provides high resistance, low capacitance insulation between nodes of Ranvir. It conducts impulses from one node to another in saltatory manner and therefore its loss is accompanied by significant conduction abnormality.
Objective:
To study various pattern of Guillain-Barre Syndrome in South Indian population.

To analyse the antecedent event and clinical profile.

To evaluate CSF and electrophysiological profile along with outcome.

Methods:
Study design was a prospective one involving patients admitted in medicine/neurology department in government general hospital.

Inclusion criteria:
Patients admitted with neurological symptoms and signs suggestive of GBS and investigations compatible with them were included.

Exclusion criteria:
Patients with equivocal diagnosis or inadequate clinical details or investigations not compatible with GBS.

Analysis:
We investigated 50 patients at Government General Hospital over a period of 9 months from August 2010 to May 2011. Study included patients with rapidly evolving areflexic motor weakness. History, clinical findings, Neuro Imaging, CSF analysis, Electrophysiology were analysed. Secondary causes were also investigated. 30 patients presented with quadripareisis, 15 patients presented with papapareisis. 2 cases were associated with diabetes and 1 case was associated with HIV infection. On nerve conduction study 25 patients showed demyelinating pattern and 15 showed axonal patterns. CSF analysis at the second week showed albuminocytological dissociation in 80% of cases.

14 Patients were treated with plasmapheresis and 15 patients were treated with IV immunoglobulin. Severity of the disease was assessed by Hughes grading. Out of the 3 patients who died, 2 died of ventilator related complications and 1 patient died of septicemia.

STUDY RESULTS: AGE AND SEX DISTRIBUTION OF PATIENTS WITH GBS

Gupta et al 1994, showed the peak age group of occurrence of GBS in third decade. Alter et al 1990, showed the peak incidence in fifth decade. Dowling et al 1997 showed bimodal distribution. In our study 42% were in third decade and 24% were in fourth decade. Male predominance was shown in Das et al 1995 as 2.7:1 and Kaplan et al 1985 showed as 2.1:1 and Alexander et al 1985 showed as 1.5:1. In our study male female ratio was 1.63:1.

ANTECEDENT EVENT PRECEEDING GBS

Various studies from India showed that 70% to 90% of GBS had antecedent illness. Our study showed 96% of patients had antecedent illnesses with comparison to other studies was as follows.
Most common symptom noted in our study was leg weakness (94%) which is similar to MGH, GIBBIS, CAPRO studies (90%)\(^8\). Upper limb weakness was noted in 60% of cases as against 85% in other studies. In our study facial weakness was noted in 34% in contrast to other studies of 50%. Bulbar weakness was 26% as against 30% in others. Sensory symptom was noted in 52% as against 70% in other studies\(^10\).

**Age and Sex Distribution of Patients with GBS**

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-19</td>
<td>5</td>
<td>4</td>
<td>9</td>
<td>18%</td>
</tr>
<tr>
<td>20-29</td>
<td>12</td>
<td>9</td>
<td>21</td>
<td>42%</td>
</tr>
<tr>
<td>30-39</td>
<td>9</td>
<td>3</td>
<td>12</td>
<td>24%</td>
</tr>
<tr>
<td>40-49</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>50-59</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>&gt;60</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>31</td>
<td>19</td>
<td>50</td>
<td>100%</td>
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</tbody>
</table>

**Signs and Symptoms Profile of GBS Patients**

Most common symptom noted in our study was leg weakness (94%) which is similar to MGH, GIBBIS, CAPRO studies (90%)\(^8\). Upper limb weakness was noted in 60% of cases as against 85% in other studies. In our study facial weakness was noted in 34% in contrast to other studies of 50%. Bulbar weakness was 26% as against 30% in others. Sensory symptom was noted in 52% as against 70% in other studies\(^10\).

**Ventilator Days of Patients with GBS (Total pts put on ventilator-14/50)**

Of the 14 cases which needed ventilator assistance, 5 patients weaned in a week, 4 patients between 8 and 14 days, 2 patients between 15 and 21 days and 1 patient above 21 days. 2 patients died of ventilator related complications. In 0-7 days group 80% had good recovery. 20% had mild to moderate deficits. 7-14 days group 50% had good recovery. In more than 21 days group 100% had severe deficit.

**An Initiative of The Tamil Nadu Dr. M.G.R. Medical University**

**University Journal of Medicine and Medical Sciences**
ELECTROPHYSIOLOGICAL STUDY
All the patients were subjected for nerve conduction study. From this study demyelinating pattern was noted in 50%, axonal in 30% mixed pattern in 20%. F wave abnormalities were noted in 70% of median nerve, 74% of ulnar nerve, 84% of peroneal nerve, 80% of tibial nerve studies in our study. Conduction block or temporal dispersion was noted in 14% of tibial nerve, 8% of ulnar nerve, 4% of peroneal nerve and 4% in median nerve studies. SNAP abnormality as per Taly et al were 100% in median and sural 50% ulnar. But in our studies SNAP abnormalities noted in 56% of median nerve, 62% of ulnar nerve, 58% of sural stimulation. Motor nerve studies of common peroneal in Taly series showed 100% as against ours 80%. In our study median nerve motor conduction abnormality was 70% as against kaur et al showed 56%. Ulnar nerve motor conduction abnormality in our study is 60% as against 55% of Taly et al.

ELECTROPHYSIOLOGY PATTERN OF GBS
PROGNOSIS AT THE END OF ONE MONTH
A short term outcome at the end of the one month was analysed. 80% of the patients with demyelinating pattern showed good recovery. 84% of axonal pattern had severe deficits. Among mixed pattern 60% had good recovery, 30% had severe deficits.

MORTALITY:
Overall mortality was attributed to the type of presentation and quality of intensive care and comorbid conditions varied from 2% to 20% in Lotter et al 1977 and Gibbel et al 1992. In our study mortality was 6% all those were died due to respiratory failure.
MORTALITY

Results:
Age of Guillain Barre Syndrome patients varied from 12 to 60 years. 42% presented in third decade. 60% were associated with gastrointestinal illness 30% follows a respiratory infection, 4% associated with pregnancy. Clinically 94% had Lower limb onset. 4% presented as bulbar onset. 2% presented as Miller Fischer Syndrome. Of them 28% needed Ventilator assistance. Albuminocytological dissociation in CSF was noted in 80% of case. Nerve conduction study showed 50% demyelination, 30% axonal pattern and 20% mixed pattern. At the end of first month there was 80% recovery in demyelinating pattern whereas 84% severe deficit with axonal pattern. 6% was the mortality.

Conclusion:

Guillain Barre Syndrome’s incidence is increasing in south Indian population which most commonly follows a gastrointestinal infection against respiratory infection worldwide. Male female ratio is 1.6:1. Most common age of presentation in third decade. Among GBS, demyelinating pattern was common which showed good recovery.

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