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A Study of Electrophysiological Profile of Guillain Barre Syndrome in Eastern Indian population

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Abstract

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Introduction

Guillain-Barré syndrome (GBS) is an acute, frequently severe, and fulminant polyradiculoneuropathy that is autoimmune in nature. This hall marks of the disease are ascending paralysis, areflexia and albuminocytological dissociation. It is the most common cause of acute flaccid paralysis in most regions after the eradication of polio (1, 2).This clinical condition is diagnosed by the clinical and electrophysiological features defined in the diagnostic criteria.(3,4, 5)

Aims: To study the Electrophysiological profile of Guillain Barre syndrome in eastern population

Methods: Consecutive patients attending the Advanced Neurodiagnostic laboratory at Aarogyam Neuroclinic during October 2019 to September 2021 with clinical and electrophysiological features of GBS were included in the study.

The Basic demographics data were noted.A detailed examination was done by the Lead neurologist at the centre and detailed nerve conduction studies were performed by the senior neurotechnologist.

Electrophysiological studies, performed with a Clarity Octopus electromyograph machine, were carried out in bilateral upper and one lower limb using standard nerve conduction techniques, studying four motor and three sensory nerves.The different patterns of neuropathies associated with GBS were documented in these patients.

Exclusion criteria-Patients with Diabetes mellitus, Hansens disease, chronic kidney , liver disease and other diseases associated with neuropathy were excluded. Patients on neurotoxic medications were also excluded.

Results: 22 patients satisfied the inclusion criteria were included in study. In this study population thirteen were male and nine were female. Most common age group was above 40 years (40.90%), followed by 11-20years (22.72%) and 21-40 years (13.63%). In the electrophysiological patterns of Guillain-Barré syndrome motor axonal and demyelinating neuropathy was most common pattern in 7 (31.8 %), sensory motor axonal and demyelinating neuropathy was second common in 5 (22.72%), motor axonal neuropathy found in 4 (18.18%), motor demyelinating neuropathy in 3 (13.63%), and motor sensory axonal and demyelinating neuropathy in 3 (13.63%). Pure motor pattern was seen in 14 (63.63%), pure sensory 5 (22.72%), and mixed sensory motor was 3 (13.63%).

Conduction block defined as 50% reduction in amplitude between two segments of a nerve was seen in 13 (59.09%), Ulnar nerve being the most common site followed by common peroneal nerve.

Figure 1

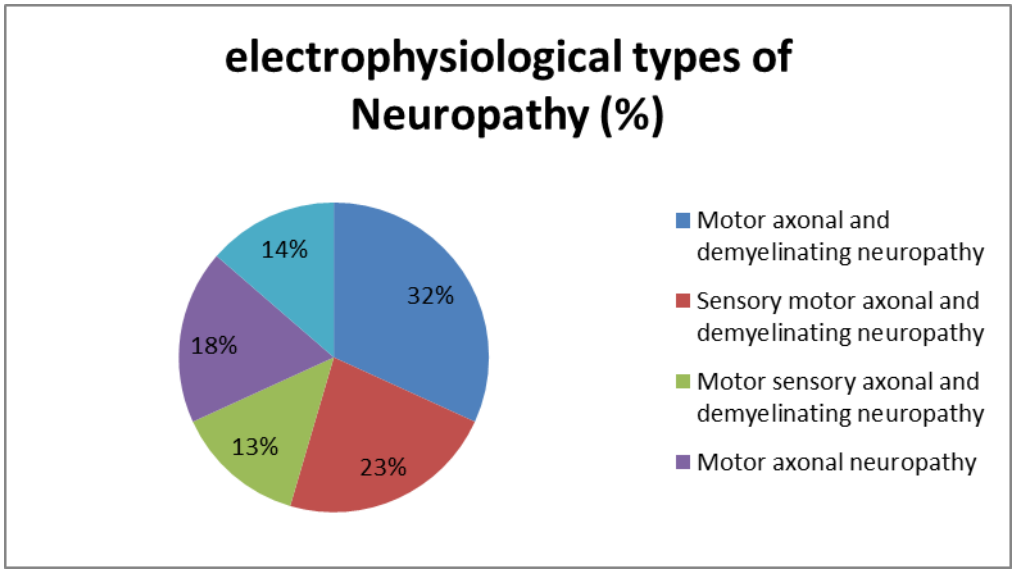

Table 1

Age group	Patient according to age	Patient according to age (%)
<10 yrs	2	9.09%
11-20 yrs	5	22.72%
21-30 yrs	3	13.63%
31-40 yrs	3	13.63%
>40 yrs	9	40.90%

Discussion

Guillain Barre Syndrome (GBS) or Acute Polyradiculoneuropathy is an acute, diffuse post infective disorder of the nervous system involving the spinal roots, the peripheral nerves and occasionally the cranial nerves. It is evident that GBS is a spectrum disorder with herterogenous type of neuropathies Various types of axonal,demyelinating and sensorimotor neuroapthies has been described in theis condition.(7-9)

GBS ia an immune mediated disease and the heteterogeneity is explained by the several distinctive pathogenetic mechanisms related to immune mediated damage to different antigens on the pheripheral nerve. (10,11)

In 70-75 % of the cases there may be some documented preceding infection serving as the inciting event leading to antibody response and the nerve damage. (12, 13). The diversity of the inciting infections correlates with the numerous types of presentations and the electrophysiological variants of the disease. (12)

A literature review showed the commonest GBS variant was demyelinating type in most regions of the world.In china there was increased prelidiction for the acute motor axonal variant(AMAN).Usually the frequency of AMAN cases ranged from 5.9-29.5%.(13-16).In our study in contrary most common neuropathy was motor axonal and demyelinating variant followed by sensorimotor/motorsensory

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axonal and demyelinating patterns.AMAN variant was seen in 18% which was as per documented in previous studies .The predominance of mixed pattern of neuropathy in our study was probably related to patterns of triggering infection in our region.Some of the mixed patterns of neuropathy had conduction blocks too.None of cases had preceding documented Covid 19 infection.

Limitation of the study was that the sample size was small and follow up of GBS patients was not done.

Conclusions:

Most common age group is after 40 years with motor and mixed axonal and demyelinating patterns being the commonest types.Conduction blocks are commonly seen in Ulnar and Common Peroneal nerves.

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