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Internal Medicine

A STUDY OF AUTONOMIC DYSFUNCTION IN GUILLAIN BARRE SYNDROME PATIENTS

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ABSTRACT **Aim:** To study the prevalence of Autonomic Dysfunction in patients of Guillain Barré syndrome (GBS) and its association with severity of GBS

Methods: Type of study: Prospective observational study. Patients diagnosed as GBS and having autonomic dysfunction were included in the study. Continuous monitoring of vitals was done. Data analysis was carried out using Statistical Package for social sciences

Results: 50 patients were enrolled in the study. The prevalence of autonomic dysfunction in GBS in our study was 36%, of which 67 % were males and 33% were females. Autonomic dysfunction was most frequently diagnosed in the age group of 15-25 years. Mortality among those with autonomic dysfunction (33%) was higher compared to those without autonomic dysfunction (12.5 %)

KEYWORDS : GBS, Autonomic Dysfunction

INTRODUCTION

Guillain-Barre Syndrome (GBS) is an acute, frequently severe and fulminant polyradiculo-neuropathy that is autoimmune in nature characterized by rapidly evolving areflexic, ascending flaccid motor paralysis with or without sensory disturbance and variable autonomic dysfunction (AD).[1] The condition, is known to occur at all ages, though it is rare in infancy. Weakness can develop acutely (within days) or sub acutely (up to 4 weeks) and reaches a plateau, with subsequent spontaneous resolution of paralysis. The pathogenesis of GBS, presumed to be triggered by a respiratory infection or gastrointestinal infection from an aberrant organ specific immune response. Demyelination of the autonomic nerves may manifest as tachycardia, hypertension, sweating, diarrhoea, urinary retention, etc. Treatment includes intravenous immunoglobulins (IVIg) or plasmapheresis, along with supportive physical therapy, mechanical ventilation and symptomatic management of autonomic dysfunction. [2]

Materials And Methods

50 patients of GBS admitted to the Civil hospital Ahmedabad were enrolled in the study. All patients > 12 years of age presenting with (first episode) GBS admitted during July 2019 to September 2020 were included in this study. Details of medical history, vitals and clinical examination of each patient were recorded. Detailed history in each case included age, sex, presenting symptoms, duration, and progress of illness. The clinical data at admission and during hospital stay including vital signs, neurological examination findings i.e., level of consciousness, cranial nerve, reflexes, motor and sensory examination was recorded. Monitoring of vitals (temperature, pulse rate, blood pressure, respiratory rate, single breath count) and symptoms & signs of autonomic dysfunction (constipation, urinary retention, pupil size, sweating, lacrimation) was done along with their timely charting. Heart rate was documented by bedside ECG at 9 AM and 5 PM over a period of 5 minutes and mean heart rate was calculated. The heart rate variability was calculated by measuring RMSSD (Root Mean Square of Successive Differences). Outcome was noted as status of the patient at discharge or death

Observations

In the present study,18 patients of GBS were diagnosed to have with dysautonomia. The detailed analysis of various observations of the study are as follows

Table 1: Prevalence of dysautonomia in GBS

GBS WITH DYSAUTONOMIA	18
GBS WITHOUT DYSAUTONOMIA	32
TOTAL	50

- Among 50 patients of GBS, Dysautonomia was observed in 18 patients (36%)
- 64% of patients with GBS showed no signs, symptoms of dysautonomia.

Table 2: Frequency of various dysautonomic features in GBS patients

SYMPTOMS OF DYSAUTONOMIA	FREQUENCY
Diarrhea	**6**
Constipation	**4**
Sialorrhea	**1**
Urinary Frequency	**4**
Urinary Retention	**5**
Hyperhydrosis	**1**
Hypohydrosis	**1**
SIGNS OF DYSAUTONOMIA	
Fluctuation In Blood Pressure	**6**
Heart Rate Variability	**12**

Heart rate variability was the commonest sign observed (n=12) in the present study followed by diarrhea (n=6) and constipation (n=6).

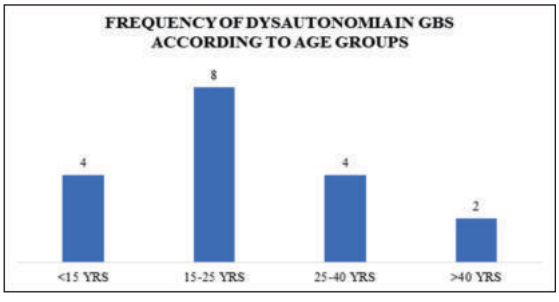

Figure 1: Dysautonomia in GBS with respect to age

- Maximum dysautonomic features were seen in age group of 15-25 year
- Dysautonomia was seen in only 2 patients above the age of 40 years

Table 3: Gender wise proportion of GBS patients with dysauton omia

SEX	TOTAL PATIENTS	PATIENTS WITH DYSAUTONOMIA
MALE	30	12
FEMALE	20	6

- There was a male predominance (n=6, prevalence-40%) in patients having dysautonomia in present study.

Table 4: Day wise heartrate variability

DAY	NO. OF PTS WITH HR VARIABILITY
DAY 1	0
DAY 2	4
DAY 5	6

Maximum patients of GBS with autonomic dysfunction showed heart rate variation at day 5 of their illness (n=6)

Table 5: Mortality in patients of GBS

MORTALITY GROUP	DEATHS	TOTAL NO.	% MORTALITY
GBS WITH DYSAUTONOMIA	6	18	33.33
GBS WITHOUT DYSAUTONOMIA	4	32	12.50
TOTAL	10	50	20

Patients having dysautonomia had 21% higher mortality compared to those without autonomic dysfunction

Table 6: Length of stay on Mechanical Support

TYPE OF PATIENT	MEAN DURATION OF ICU STAY (DAYS)
GBS WITH AUTONOMIC DYSFUNCTION	15.34
GBS WITHOUT AUTONOMIC DYSFUNCTION	11.26

DISCUSSION

Our study was carried out to determine the prevalence of autonomic dysfunction and characterize its manifestations and association with severity of GBS. Prevalence of autonomic dysfunction in our study (36%) was comparable to Cooper et al (35%), Truax BT et al (38%) and Chakroborty et al (40%) study. Patients of GBS in the age group 15-25 years were most susceptible to autonomic dysfunction Heart rate variability was the most common presenting autonomic dysfunction in our study (67%) which was higher as compared to other studies, Truax et al (37%). Maximum variability occurred at day 6 of admission. Sinus tachycardia (56%) was more common as compared to sinus bradycardia (11%) Sweating abnormalities were the least common abnormality (12%) comparable to Gecow and powplow et al (12%). Males had higher propensity to develop autonomic dysfunction (40%) similar to 43% in Mahmood et al. Mortality in our study group amongst GBS patients with dysautonomia was 33% comparable to Dimario et al (28%). Mean duration of mechanical ventilatory support was longer in patients with autonomic dysfunction (15.34 days) compared to those without dysfunction (11.26 days) [3–8]

CONCLUSION:

Dysautonomia is a complication as well as presenting feature in the patients of GBS. Methods including assessment of heart rate variability, ECG, temperature charting, and salivatory function test should be used early. These methods will not only allow to detect autonomic dysfunction in patients of GBS but also reduce the morbidity and mortality in patients of GBS. In our study autonomic dysfunction has a tendency to affect predominantly young males maximally at and after 5 days. GBS patients with autonomic dysfunction have a higher mortality than those without dysfunction. This inbounds us to have screen the patients during this period.

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