Study on Guillain-Barré Syndrome in A Tertiary Level Military Hospital

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Abstract

Introduction: Guillain-Barre Syndrome (GBS) is an acute, frequently severe and fulminant polyradiculopathy that is autoimmune in nature and that causes acute neuromascular failure. The condition is quite common in Bangladesh. GBS is an autoimmune and post-infectious immune disease.

Objectives: To see the different presentation and outcome of GBS in combined military hospital (CMH) Dhaka.

Materials and Methods: This was a retrospective observational study conducted on all the GBS patients admitted in the Neurology Ward of CMH Dhaka from January 2005 to July 2010. Total 25 patients clinical and laboratory data including CSF analysis, electrophysiological study data were collected from patients' case sheet.

Results: Among the 25 GBS patients male was 22 (88%) and female 03(12%) and most common age group affected was 31-40 years comprising of 09(36%) patients. The most common types of GBS patients were acute inflammatory demyelinating polyneuropathy (AIDP) 17(68%) patients and 10(40%) patients were found to have history of upper respiratory tract infection (URTI). Albuminocytological dissociation was found in 20(80%) patients in CSF study. Intravenous immunoglobulin therapy was given to 13(52%) patients, of them 09(36%) patient needed mechanical ventilation; rest 12(48%) patients were treated conservatively. The final outcome was full recovery 22(88%) patients, 02(8%) patients had residual disability and only one patient died after 2 years of GBS.

Conclusion: GBS is an important cause of peripheral neuropathy. Patient should be monitored carefully because a significant number of patients ultimately require mechanical ventilation for respiratory failure which may be of sudden onset.

Key-words: Guillain-Barré Syndrome, Autoimmune disease, Post-infectious immune disease.

Introduction

Guillain- Barre Syndrome (GBS) is an acute, frequently severe and fulminant polyradiculopathy that is autoimmune in nature and that causes acute neuromascular failure[1]. GBS is quite common in Bangladesh. GBS is an autoimmune and post-infectious immune disease[2]. The syndrome includes several pathological subtypes, the most common of which is a multifocal demyelinating disorder of the peripheral nerves[3]. In the present review, the main clinical aspects and the basic features of GBS are discussed along with approaches to diagnosis and treatment. Furthermore, the pathophysiology of GBS is reviewed, with an emphasis on the production of symptoms and the course of the disease. This study was to review cases of GBS admitted to Combined Military Hospital Dhaka during a periods of 5 years to ascertain whether a distinct pattern of the syndrome exists in Armed Forces Personnel.

Material and Methods

This was a retrospective observational study conducted on all the GBS patients admitted in the Neurology Ward of CMH Dhaka from January 2005 to July 2010. Total 25 patients clinical and laboratory data like; age, sex, aetiology of the disease, cerebrospinal fluid (CSF) analysis, electrophysiological study (nerve conduction test) and other common investigations were collected from patients case sheet. Collected data were analyzed by SPSS for Windows 18.0. Data presented as frequency and percentage.

Result

Among the 25 GBS patients male was 22 (88%) and female 03(12 %) with male to female ratio 7.3 : 1. Patients' age range was 5 to 75 years with mean ± SD 32.2±13.7 years and most common age group affected was 31-40 years comprising of 09(36%) patients followed by age group 21-30 having 5(20%) patients (Table-I). The most common types of GBS patients were acute inflammatory demyelinating polyneuropathy (AIDP) 17(68%) patients and and 10(40%) patients were found to have history of events like upper respiratory tract infection (URTI) (Table-II). Albuminocytological dissociation was found in 20(80%) patients in CSF study (Table-III). Out of 25 patients nerve conduction was done on 18 patients among them AIDP was 17(94.4%) and 1(5.6%) was acute motor axonal neuropathy (AMAN) (Figure-1). Intravenous immunoglobulin therapy was given to 13(52%) patients, of them 09(36%) patient needed mechanical ventilation, rest 12(48%) patients were treated conservatively (Figure-2). The final outcome was full recovery 22(88%) patients, 02(8%) patients had residual disability and only one patient died after 2 years of GBS (Figure-3) due to some complications of DM, HTN as he was suffering from those diseases.

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Table-I: Age and sex distribution of patients (n=25)

Characteristics		Frequency	Percentage
Age in years	≤10	02	08
	11-20	03	12
	21-30	05	20
	31-40	09	36
	41-50	03	12
	51-60	02	08
	61-70	01	04
	Mean±SD: 32.2±13.7		
Sex	Male	19	76
	Female	06	24

Table-II: Types and events of GBS (n=25)

Types and events of GBS		Frequency	Percentage
Types of GBS	AIDP	17	68
	Axonal form of GBS	01	04
	Unclassified	07	28
Type of events	URTI	10	40
	Diarrhoea	04	16
	Chicken pox	01	04
	No event	10	40

Table-III: CSF finding in various forms of GBS (n=25)

Parameter	AIDP (n=17)	Axonal (n=01)	Unclassified (n=07)
Protein raised	14(56%)	01(4%)	05(20%)
Protein normal	03(12%)	-	02(8%)
Cell count normal	17(68%)	01(4%)	07(28%)
Albumino-cytological dissociation	14(56%)	01(4%)	05(20%)

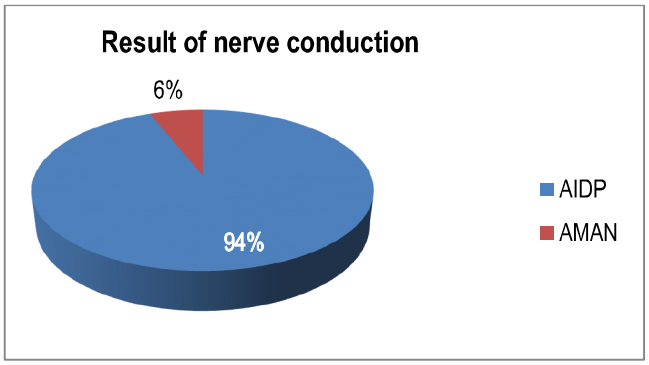

Figure-1: Result of nerve conduction of patients (n=18)

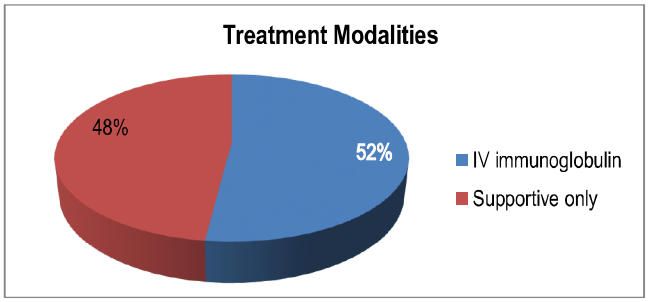

Figure-2: Treatment modalities of patients (n=25)

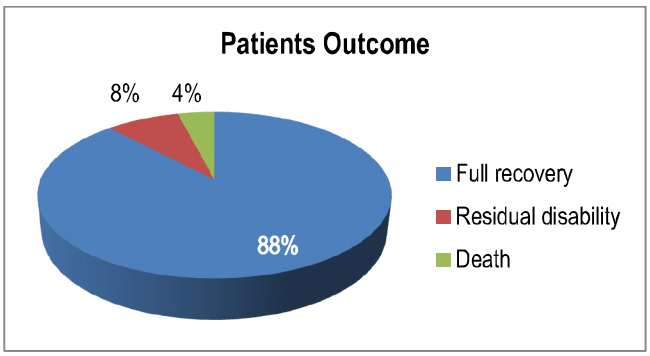

Figure-3: Final outcome of patients (n=25)

Discussion

The study comprises of 25 cases of GBS admitted under neurology centre of CMH Dhaka from January 2005 to July 2010. All the cases were diagnosed by competent Neurophysician of this tertiary hospital. Of this 25 patients with clinically defined Guillain Barre Syndrome, 68% patients were AIDP, 04% had Axonal form and rest 28% patients were unclassified. This high frequency of AIDP variant simulates with an almost similar frequency (70%-80%) in different series from western world[4]. This differs from the series from northern China in which AMAN is often encountered[5]. Over the past 40 years, GBS series from Europe and North America showed a higher incidence among patients over 40 years of age[6]. This study showed a pattern of age distribution resembling that of North America and Europe with highest frequency (36%) occurs in young adult between age group 31-40 years[7]. Infants appear to have the lowest rate of GBS[8]. Preceding events were detectable in 60% cases in this study, a figure close to other series[9] of 40-80%. In most series non specific upper respiratory tract infection was usually the most common preceding event, followed by acute gastrointestinal illness, which occurred in 8-17 % of patients[10].

The median duration from the start of treatment to the time of improvement was 6.5 days for those who received IV Ig and 03 patients who were treated with steroids improved within 12 days after treatment. Outcome is good in those who are given IV Ig in the early stage. It is observed in all studies[11-13]. Appreciable short term benefits from plasma pheresis as shown by the decrease in the duration of the artificial ventilation[14]. Follow up studies showed that most of our patients recovered without appreciable neurological sequelae and resumed a normal life which is almost identical to that of different studies. The mortality in our series is low (4%), comparable with some other series[15]. Previous studies on GBS have identified several clinical features in patients associated with poor outcome[16]. These include old age, rapid progression of the illness and ventilator dependence[17,18]. Electrophysiological studies have been reported to be more precise in predicting a poor prognosis[19,20]. In this study, three features correlated with a poor outcome: ventilator dependence, a low mean CMAP amplitude and age over 50 years.

Conclusion

There were lots of limitations of this retrospective study. Electrophysiological test was not done in all patients. However to conclude it can be said that GBS is an important cause of peripheral

neuropathy. Males are more affected than female. The most common form is AIDP. The patients should be monitored carefully because a significant number of patients ultimately require mechanical ventilation for respiratory failure which may be of sudden onset.

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