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ORIGINAL ARTICLE

Clinical and Demographic Characteristics of Guillain-Barré Syndrome (GBS) Variants in a Tertiary Care Hospital.

Mian Ayaz ul Haq[1], Yusra Samin[2], Talha Durrani[3], Danish Nabi[4], Muhammad Owais Khan[5], Muhammad Adeel Khan[6]

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ABSTRACT… Objective: To evaluate clinical and demographic characteristics of guillian-barre syndrome. **Study Design:** Descriptive, Cross-sectional study. **Setting:** Department of Neurology, Lady Reading Hospital, Peshawar. **Period:** December 2020 to March 2022. **Material & Methods:** The study identified 117 patients with GBS, and the mean age was 43.59 ± 17.39 years. There were 78 male (67%) and 39 female (33%) patients. **Results:** The most common GBS subtype was AMAN (46.2%), followed by AMSAN (34.2%), AIDP (16.2%), and atypical (2.6%). The study found a significant difference in gender distribution between the two subtypes, with male patients being more likely to have axonal GBS. Regarding antecedent events, the study found that 61% of patients had a preceding illness, with gastrointestinal infection being the most common (50%). The clinical features of GBS varied by subtype, with patients with AMAN being more likely to have walking difficulty, symmetric ascending weakness, and numbness/tingling, while patients with AIDP were more likely to have a fever and respiratory distress. **Conclusion:** The study's findings are broadly consistent with previous research, highlighting the heterogeneity of GBS in terms of its presentation and antecedent events. However, other differentiating points that need to be taken into consideration have also been mentioned. Furthermore, work needs to be done to raise awareness among medical professionals in Nothern Pakistan regarding the salient features of the problem.

Key words: Autoimmune Neuropathy, Gullian Barre Syndrome, Neurology, Neuroimmunology, Post-infectious Neuropathy.

INTRODUCTION

The Guillain-Barré syndrome (GBS) is a subset among acute immune-mediated polyneuropathies. It is one of the most frequent causes of sudden, acquired weakness and is frequently brought on by prior infections.[1] Every year, 100,000 people throughout the world are affected by it. Although GBS is a recognized clinical illness with established diagnostic parameters, patient clinical manifestation, course of illness, and outcomes vary widely. Clinical variants of GBS, such as Miller Fisher syndrome (MFS), pure motor, paraparesis, or pharyngeal-cervical-brachial variants, may be present in patients.[2,3] Based on its electrophysiological types, GBS has two main subgroups i.e., Demyelinating or Axonal. While some patients experience only minor symptoms and recover quickly on their own, many others experience tetraplegia, a respiratory or autonomic failure that necessitates critical care, stays profoundly crippled or passes away despite treatment.[4] Plasma exchange or intravenous immunoglobulin (IVIg) can speed up the recovery process, but in low-income regions of the world, the majority of patients only receive supportive treatment. The most common reported antecedents of GBS are viral infections and campylobacter diarrhea, roughly making up 54.5% of the total antecedent infections worldwide, though it can also be brought on by mycoplasma infections, Hodgkin's disease, lymphoma, or systemic lupus erythematous.[5]

There is limited established work in regard to the

1. MBBS, MRCP (Medicine), MRCP (Neurology), FRCP, CCT, Assistant Professor Neurology, Hayatabad Medical Complex, Hayatabad.
2. MBBS, House Officer Medicine, Khyber Teaching Hospital, Peshawar.
3. MBBS, Trainee Medical Officer Medicine, Khyber Teaching Hospital, Peshawar.
4. MBBS, FCPS, Specialty Registrar Neurology, Hayatabad Medical Complex, Hayatabad.
5. MBBS, FCPS, Specialty Registrar Neurology, Hayatabad Medical Complex, Hayatabad.
6. Final Year MBBS Student, Rehman Medical Institute, Peshawar.

Correspondence Address:
Dr. Talha Durrani
Khyber Teaching Hospital.
talhahdurrani@gmail.com

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differences between the demographic and clinical characteristics of Axonal and Demyelinating subsets of GBS in the Northern Pakistani population. Furthermore, the published literature is also deficient in terms of antecedent causes of GBS in the respective population; hence this study was undertaken.

MATERIAL & METHODS

A descriptive, cross-sectional study was carried out at the Neurology Department of Lady Reading Hospital, Peshawar, from December 2020 to March 2022. The Ethical approval was taken from the departmental IRB (Institutional review board) (50/LRH/MTI) at Lady Reading Hospital, Peshawar. The sample size was based on a previously conducted study, with the same disease parameters in mind i.e., 62, however, it was inflated to 117 to avoid underpowered analysis. Using the Brighton criteria, patients of all ages and genders were diagnosed with GBS. Patients who had poliomyelitis, botulism, toxin neuropathy, or any other cause of flaccid paralysis were not included. Patients with insignificant or inconclusive Nerve Conduction Studies (NCS) findings were also excluded. SPSS version 26 was used for statistical analysis. Continuous variables were reported as means ± standard deviation (SD), and categorical variables were reported as frequencies and percentages. Chi-square and independent samples t-test was used to test for the statistical significance of categorical and quantitative variables respectively. A p-value of <0.05 was considered statistically significant.

RESULTS

We identified 117 patients with GBS in our study, and the mean age was 43.59 ± 17.39 years. There were 78 male (67%) and 39 female (33%) patients. The most common GBS subtype was AMAN (46.2%), followed by AMSAN (34.2%), AIDP (16.2%), and atypical (2.6%). Our findings showed that the mean age of GBS patients did not differ significantly between the axonal and demyelinating subtypes (41.27 vs. 37.96, $p=0.88$). However, we found a significant difference in gender distribution between the two subtypes ($p=0.03$), with male patients being more likely to have axonal GBS.

Regarding antecedent events, we found that 61% of patients had a preceding illness, with gastrointestinal infection being the most common (50%). We also found that the clinical features of GBS varied by subtype, with patients with AMAN being more likely to have walking difficulty, symmetric ascending weakness, and numbness/tingling, while patients with AIDP were more likely to have a fever and respiratory distress.

Age (Mean ± SD)		43.59±17.39
Gender	Male	78 (67%)
	Female	39 (33%)
GBS Variant	Acute motor axonal neuropathy (AMAN)	55 (46.2%)
	Acute Motor Sensory Axonal Neuropathy (AMSAN)	41 (34.2%)
	Acute inflammatory demyelinating polyneuropathy (AIDP)	19 (16.2%)
	Atypical (MFS, BBE)	2 (2.6%)

Table-I. Gender and variants

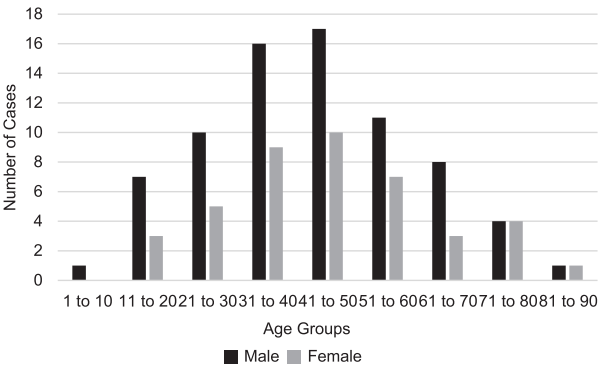

Figure-1. Age distribution of GBS patients

DISCUSSION

Guillain-Barré syndrome (GBS) is an autoimmune disorder that affects the peripheral nervous system, leading to muscle weakness and sometimes paralysis. It is known to affect people of all ages, but the mean age of onset is typically around 40 years old. In this study, the mean age of GBS patients was 43.59 years old, which is consistent with previous studies.[6,7]

One interesting finding in this study is the gender distribution of GBS patients. Among the 117 patients, 78 (67%) were male and 39 (33%) were female.[8,9]

Variable		GBS Variant				Total
		AMAN	AMSAN	AIDP	Atypical	
Age (Mean)		41.27	36.33	39.59	33	
Gender	Male	31	28	17	2	78 (66.67%)
	Female	24	13	2	0	39 (33.33%)
Antecedent Event	Surgery	0	2	0	0	2 (1.71%)
	Gastrointestinal Infection	35	17	7	0	59 (50.43%)
	URTI	11	5	2	1	19 (16.24%)
	Fever	2	9	5	0	16 (13.68%)
	None	6	8	6	1	21 (17.95%)
Clinical Features	Respiratory distress	7	6	3	0	16 (13.68%)
	Walking difficulty	31	24	10	1	66 (56.41%)
	Symmetric Ascending weakness	38	29	12	1	80 (68.38%)
	Numbness and/or tingling	29	21	9	1	60 (51.28%)

Variable		Axonal	Demyelinating	Total	P-Value
Age (Mean)		38.8	39.59		0.88
Gender	Male	61	17	78	0.03*
	Female	37	2	39	
Antecedent Event	Present	48	47	95	0.26
	Absent	6	14	20	

Table-III. Demyelinating vs Axonal types

This is similar to some previous studies that have reported a higher incidence of GBS in males, while others have reported no significant gender difference.[10,11] It is worth noting, however, that the sample size in this study is relatively small, and further research with larger sample sizes may be needed to confirm this gender distribution.[7,12]

The study also examined the different variants of GBS in the patient population. Acute motor axonal neuropathy (AMAN) was the most common variant, accounting for 46.2% of cases, followed by acute motor sensory axonal neuropathy (AMSAN) at 34.2%, and acute inflammatory demyelinating polyneuropathy (AIDP) at 16.2%. Atypical GBS, which includes Miller Fisher syndrome (MFS) and Bickerstaff's brainstem encephalitis (BBE), was the least common variant, accounting for only 2.6% of cases.(13, 14) This distribution is broadly consistent with previous studies, which have found that AMAN is the most common variant in some regions, especially the South East Asian region, while AIDP is more common in Europe and America.[14]

The study also investigated the clinical characteristics of patients with different GBS variants. The age of onset was found to be lowest in patients with atypical GBS, at 33 years old, while patients with AIDP had the lowest age of onset for the classic GBS variants (i.e., not including atypical GBS).[15] The study found that gastrointestinal infections were the most common antecedent events, occurring in 35 patients with AMAN, 17 patients with AMSAN, and 7 patients with AIDP. This is consistent with previous research, which has found that infections are a common trigger for GBS, and GI infections remain top of the list.[16,17]

The study also found some differences in symptom presentation among the different GBS variants. Patients with AMAN were more likely to experience walking difficulty and symmetric ascending weakness, while patients with AIDP were more likely to experience respiratory distress and fever. Patients with AMSAN were more likely to experience numbness and tingling. These findings are consistent with previous research, which has found that different GBS variants can have distinct symptom presentations.[8]

Importantly, we also found a significant difference in gender distribution between the axonal and demyelinating subtypes, with male patients being more likely to have axonal GBS. This finding

is consistent with previous studies that have reported a higher incidence of axonal GBS in male patients.

CONCLUSION

In conclusion, this study provides some insights into the demographic and clinical characteristics of GBS patients in Northern Pakistan. The study's findings are broadly consistent with previous research, highlighting the heterogeneity of GBS in terms of its presentation and antecedent events. However, other differentiating points that need to be taken into consideration have also been mentioned. Furthermore, work needs to be done to raise awareness among medical professionals in Northern Pakistan regarding the salient features of the problem.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Mian Ayaz ul Haq	Concept.	
2	Yusra Samin	Manuscript writing.	
3	Talha Durrani	Data analysis.	
4	Danish Nabi	Data interpretation.	
5	Muhammad Owais Khan	Data interpretation.	
6	Muhammad Adeel Khan	Data collection and writing.	