Epidemiology of Guillain Barre Syndrome in North Western Part of Rajasthan

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Abstract

Background: Guillain-Barre syndrome is an autoimmune disorder and is an important cause of acute flaccid paralysis. This study was carried out to determine the prevalence and epidemiology of Guillain Barre Syndrome.

Methods: This is a retrospective study conducted in the Department of Paediatrics, Sardar Patel Medical College & A.G. Hospitals, Bikaner. All the cases of Acute Flaccid Paralysis are reported under the AFP surveillance Program. Records of all the patients of AFP in years 2012 to 2015 were analysed. Among these, cases diagnosed as Guillain-Barre syndrome were taken into consideration. The diagnosis was made on the basis of history, clinical examination, CSF studies, nerve conduction velocity and MRI of spinal cord when required. All the collected data was tabulated and stastically analyzed by using SPSS software.

Results: In our study, Total 130 cases were reported as having Acute Flaccid Paralysis in years 2012 to 2015.Of these 54 cases were diagnosed to have Guillain-Barre syndrome. In our study prevalence of GBS was 41.5%. Most cases were in the age range of 13-60 months. In these study males (68.5%) were more affected than girls (31.5%). Lower limb weakness is the common presentation in GBS patients. Out of 54 reported GBS cases, 9 cases were expired.

Conclusion: Future research needs to be focused on developing accurate diagnostic methods as well as protocols to identify at-risk patients. The role of immunotherapy in patients with GBS needs to be fully established, and effective therapies are yet to be developed.

Keywords: Acute flaccid paralysis, Bikaner, Epidemiology, Guillian barre syndrome.

Introduction

Guillain-Barre syndrome is an autoimmune disorder and is an important cause of acute flaccid paralysis (AFP). This is considered to be a post-infectious polyneuropathy which involves mainly motor but also sensory and sometimes autonomic nerves. Disease which present as ascending paralysis, weakness usually begin in the lower extremities and progressively involves trunk, the upper limbs and finally the bulbar muscles (Landry ascending paralysis).[1] Proximal and distal muscles are involved relatively symmetrically, but asymmetry is found in 9% of cases. CSF studies are essential for diagnosis. CSF protein is elevated to more than twice the upper limit of normal, the glucose level is normal and there is no pleocytosis. The dissociation between high CSF protein and a lack of cellular response in a patient with an acute or sub-acute polyneuropathy is diagnostic of Gullain-Barre syndrome. MRI findings include thickening of the cauda equine and intra-thecal nerve roots with gadolinium enhancement. MRI of the spinal cord may be indicated to rule out other important differential diagnosis of Gullain-Barre syndrome like transverse myelitis, acute demyelinating encephalomyelitis (ADEM).[1] Motor nerve velocities are greatly reduced and sensory nerve conduction time is often slow. Electromyography (EMG) shows evidence of acute denervation of muscle.

The disease usually follows a benign course and spontaneous recovery begins within 2-3 weeks.[2] Most patients recover fully, although some are left with residual weakness. Treatment with intravenous immunoglobulin (IVIG) results in faster recovery hence timely diagnosis is crucial to the management.[3] This study was undertaken to analyze the prevalence and epidemiology profile of children with AFP diagnosed to have GBS in a tertiary care hospital of North India.

Material and Methods

This is a retrospective study conducted in the Department of Paediatrics, Sardar Patel Medical College & A.G. Hospitals, Bikaner. All the cases of Acute Flaccid Paralysis are reported under the AFP surveillance Program. Records of all the patients of AFP in years 2012 to 2015 were analysed. Among these, cases diagnosed as Guillain-Barre syndrome were taken into consideration. The diagnosis was made on the basis of history, clinical examination, CSF studies, nerve conduction velocity and MRI of spinal cord when required. Cases of AFP with other causes like post diphtheric polyneuropathy, transverse myelitis, Rabies encephalomyelitis etc. were excluded. Year wise data in reference to age, sex, clinical profile and area of occurrence for AFP cases were organized and studied. All the collected data was tabulated and stastically analysed by using SPSS software.

Results

In our study, Total 130 cases were reported as having Acute Flaccid Paralysis in years 2012 to 2015.Of these 54 cases were diagnosed to have Guillain-Barre syndrome. In our study prevalence of GBS was 41.5%. Most cases were in the age range of 13-60 months. In these study males (68.5%) were more affected than girls (31.5%). Lower limb weakness is the common presentation in GBS patients. There is no seasonal variation in our study. Most cases of reported GBS patients were belong to rural and low social group. Out of 54 reported GBS cases, 9 cases were expired and remaining 45 cases were successfully discharged from hospital. In admitted GBS cases mortality occurs due to respiratory failure.

Table 1: Gender distribution of Gullain-Barre syndrome

Gender	Number Of Cases	%
Male	37	68.5
Female	17	31.5
Total	54	100.0

Table 2: Age and year wise distribution of GBS patients

Age-group in years	Year 2012	Year 2013	Year 2014	Year 2015	TOTAL
0-1	-	-	1 (5.8%)	-	1 (1.8%)
2-5	5 (83.3%)	13 (46.4%)	6 (35.2%)	2(66.6%)	26 (48.1%)
6-10	1 (16.7%)	6 (21.4%)	6 (35.2%)	1(33.3%)	14 (25.9%)
11-15	-	9 (32.1%)	4 (23.5%)	-	13 (24.07%)
Total cases	6 (100%)	28 (100%)	17 (100%)	3 (100%)	54 (100%)

Discussion

Guillain-Barre syndrome is an autoimmune disorder and is an important cause of acute flaccid paralysis (AFP). This is considered to be a post-infectious polyneuropathy which involves mainly motor but also sensory and sometimes autonomic nerves. The weakness is distal, symmetrical and involves motor and sensory nerve fibers. In GBS, the demyelination affects the ventral roots first and presents as motor weakness of proximal muscle more than distal. In our study 130 cases reported as acute flaccid paralysis, of these 54 diagnosed as GBS. Prevalence of GBS was 41.5%. Our study shows no seasonal variation. No clear seasonal or geographic clustering of GBS was evident in Israel during the 4 years of this study.[4] it shows our study has similar findings with Israel study. Our study cases reported in winter and summer season uniformly. The exact cause is not known. Most of the viral outbreak occurs in winter, this may be the reason GBS cases were reported in winter. In summer diarrheal diseases are common; this may be the etiological factor in GBS in our cases. In our study mean age of onset was between 13 to 60 months. In our study youngest age reported is one year. In other study youngest age reported is 2 year.[5] In our study most cases were presents with lower limb weakness followed by lower limb

pain, difficulty in respiration and regurgitation of food from mouth. In these study GBS cases was suspected clinically and confirmed by Cerebro spinal fluid analysis and nerve conduction studies. Majority of cases are confirmed on the basis of albumin cytological dissociation in CSF analysis. In these study Reported GBS patients are belongs to rural population. The exact reason for distribution is not known. In the north western part of Rajasthan most cases reported from Bikaner district followed by Ganganagar, churu, and Hanumangarh and Jaisalmar. Out of 54 diagnosed cases 32 cases needed immunoglobulin infusion treatment and rest recovered spontaneously. 9 cases of GBS patients were expired. All cases of expired GBS patients are due to respiratory failure.

Conclusion

Our study shows GBS is the most common type of acute flaccid paralysis. Immunoglobulin is the mainstay of treatment for GBS patients. Early evaluation of AFB cases, diagnosis and treatment prevent the mortality in GBS patients. Future research needs to be focused on developing accurate diagnostic methods as well as protocols to identify at risk patients. The role of immunotherapy in patients with GBS needs to be fully established, and effective therapies are yet to be developed.

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