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Original Article

Outcome of Patients with Gullain Barre syndrome at Tertiary Care Hospital in Eastern Nepal.

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Abstract

Background

Gullain Barre syndrome is the most common cause of acute flaccid paralysis. Early diagnosis and treatment improves survival in patients with Gullain Barre Syndrome.

Material and Methods

The purpose of the study was to note the common clinical features and identify predictors of outcome in Patients with Gullain Barre Syndrome. It is a prospective study which was conducted at Nobel Medical College Teaching Hospital from April 2015 to March 2016.

Results

Time between onset of symptoms, presentation to hospital and admission was 5 ± 4 days. Four Patients (20%) gave history of upper respiratory tract infections and 12 (60%) had diarrhoea. Limb weakness was the most common symptom, which was documented in 20 (100%) patients. Other common symptoms were limb paresthesia, limb pain, and bladder dysfunction. Cerebrospinal Fluid protein was raised in 16(80%) patients to more than 45 mg/dl. All of our patients had CSF cell count less than 10. One (5%) patient had normal nerve conduction study initially. Eight (40%) patients had axonal (AMAN) variant of GBS, 3(15%) had AMSAN variant of GBS, while 8(40%) had demyelinating neuropathy (AIDP). The mean duration of hospital stay was7.4 ±2.7 days. Three months after hospital discharge 12(60%) patients achieved complete recovery. Eight (40%) patients still needed some support with ambulation. Predictors of worse outcome were old age, rapid progression of disease and AMSAN variant of GBS.

Conclusion

Gullain Barre syndrome is an important cause of acute flaccid paralysis in children and adults. Early diagnosis is based on history of symmetrical limb weakness, CSF Findings and nerve conduction study. Majority of patients improve with supportive care while some develop respiratory failure and needs mechanical intubation.

Key Words

AIDP, AMAN, Gullain Barre Syndrome, IVIG, Plasmaphresis

Introduction

Guillain-Barré syndrome is an important cause of acute peripheral neuropathy that manifests clinically with limb weakness and may progress for up to 4 weeks. The pathogenesis of disease involves either inflammatory demyelination or axonal degeneration. Gullain Barre Syndrome has been reported from all over the world. Guillain-Barré syndrome is more common in men. Epidemics of Guillain-Barré syndrome is noted in summer in Northern China with

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association with C. jejuni infection [1]. A few weeks before the onset of Guillain-Barré syndrome majority of patients report nonspecific infections of upper respiratory tract or diarrhea. Guillain-Barré syndrome may also be triggered by trauma, vaccination or surgery [2]. The affected nerves show Multifocal segmental demyelization [3]. Several variants of Guillain-Barré syndrome have been reported which include acute inflammatory demyelinating poly radiculo neuropathy, acute motor-sensory axonal neuropathy and acute motor axonal neuropathy and Miller Fisher syndrome [4,5].

Most of the patients with Guillain-Barré syndrome improve over weeks or months. Nearly 3 to 8% of patients die due to complications like pulmonary embolism, sepsis. Permanent disabling weakness, imbalance, or sensory loss occurs in 5 to 10 percent [6]. This study was undertaken to determine which variant of GBS was common in the Eastern part of Nepal and to identify the prognostic factors.

Material and Methods

The study was conducted at Nobel Medical College, Nepal. All the patients who were admitted with diagnosis of Gullain Barre Syndrome between June 2016 and May 2017 were enrolled in the study. It is a prospective study which was conducted at Nobel Medical College Teaching Hospital from April 2015 to March 2016. Detailed information was obtained from each patient regarding age, sex, clinical feature, disability, preceding illness. The diagnosis of acute Guillain-Barré syndrome was based on the finding of symmetrical ascending limb weakness with hypo or areflexia and Cerebrospinal fluid showing albumin cytological dissociation. The patients were examined during the hospital stay and were followed up until 3 months after discharge from hospital. Data were entered into the Microsoft Excel and analyzed using SPSS 17.

Nerve conduction was performed soon after admission to hospital. The patients were classified into demyelinating or axonal variant of Guillain-Barré syndrome based on electrophysiological studies [8]. The disability of the patients was graded based on the functional grading scale of Hughes *et al*. [9]

Scale of Hughes

Grade 0	Normal functional state
Grade 1	Able to run with minor signs and symptoms
Grade 2	Able to walk 5 m independently
Grade 3	Able to walk 5 m with aid
Grade 4	Bed- or chair-bound
Grade 5	Requires assisted ventilation

Results

Clinical features and laboratory parameter of the patients

Table 1. Demographic profile of the patients

Clinical characteristics	Number of patients(N = 20)
Age in years	31.7 ± 15.5
Sex Male Female	 12.0(60%) 8.0(40%)
Preceding infection Upper respiratory infection Diarrhoea	 4.0(20%) 12.060%)
Time of onset of symptoms and presentation to hospital (in Days)	5.0

Most of our study patients were young with male predominance. Eighty percent of our study patients had infection prior to onset of the illness.

Table 2. Clinical characteristics of the patients

Characteristics	Number of patients(N)
Limb weakness	20(100%)
Sensory symptoms	12(60%)
Facial diplegia	6(30%)
Absent deep tendon reflexes	20(100%)
Autonomic dysfunction	7(35%)
Numbness	8(40%)
Shortness of breath	6(30%)

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All the patients who presented to hospital had limb weakness and absent deep tendon reflexes. Thirty percent of patients had respiratory problem with need for respiratory support.

Table 3. Investigation findings of the patients

Characteristics	Number of patients(N)
CSF Cell Count	
Normal	19(95%)
Raised	1(5%)
CSF Protein	
Normal	4(20%)
Raised	16(80%)

Majority of our study patients had normal cell count. Cerebrospinal fluid Protein was raised in 80% of patients.

Table 4. Treatment offered to the patient

Characteristic	Number of patients(N)
Supportive care	20(100%)
IVIG	1(5%)
Plasmaphresis	0
Mechanical ventilation	1(5%)
Length of hospital stay	7.4±2.7
Prognosis	
Complete recovery	8(40%)
Residual deficit	12(60%)
Death	0

All of our patients were given supportive care. One patient needed mechanical ventilation that was provided intravenous immunoglobin. Duration between onset of symptoms and admission to hospital was 5 ± 4 day. Eleven (55%) patients did not report any infection or event preceding the onset of illness. Four (20%) patients gave history of upper respiratory infections and 12 (60%) patients reported having diarrhea prior to onset of GBS. Limb weakness, was documented in 20 (100%) patients. Limb paresthesia, limb pain, and facial weakness were reported by some patients. In all the patients CSF analysis was done after the first week which increased the probability of having higher CSF protein. CSF protein was raised in 16(80%) patients to more than 45 mg/dl. One patient had CSF protein higher than 100 mg/dl. All of our patients had CSF cell count less than 10. Nerve conduction study was done soon after hospital admission. One (5%) patient had normal study initially. Eight (40%) patients had axonal(AMAN) variant of GBS,3(15%) had AMSAN variant of GBS, while 8(40%) had demyelinating neuropathy(AIDP).

The mean duration of hospital stays was7.4 ±2.7 days. One patient (5%) required mechanical ventilation. Most of our patients were managed with supportive care. Five percent of our patients received intravenous immunoglobin. Patients were assessed for their disability at the time of discharge from hospital and after 3 months. Three months after hospital discharge 12(60%) patients achieved complete recovery. Eight (40%) patients still needed some support with ambulation.

Discussion

Guillain Barre Syndrome is an important cause of acute flaccid paralysis. Acute inflammatory demyelinating neuropathy is the most common variant of Guillain-Barré syndrome in the western world while in China acute motor axonal neuropathy variant of GBS is the commonest. In our study ,12(60%)of our patients had acute axonal variant of GBS while only 8(40%) had demyelinating variant of GBS. All of our patients who got admission to the hospital had limb weakness. Twelve (60%) of our patients needed some support for ambulation. Eight (40%) of the patients were ambulant at hospital admission and were discharged from hospital after few days of observation once their weakness remained static and showed some signs of improvement. Majority of our patients also had sensory symptoms in the form of paresthesia, tingling (60%). Some had autonomic dysfunction in the form of

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resting tachycardia, hypotension, and hypertension (35%).

In our study 5(25%) patients had history of diarrhea while 4(20%) had history of upper respiratory infection 2-3 weeks preceding the illness. Most patients with Guillain–Barré syndrome experience signs and symptoms of an infection like upper respiratory tract illness or diarrhea prior to the onset of the neurological symptoms [10]. In the present study lumbar puncture was performed at second week of the onset of limb weakness as the cerebrospinal fluid profile may be normal during the first week of illness. Elevated cerebrospinal fluid protein concentration in Guillain-Barré syndrome is due to increased blood–CSF barrier permeability [11, 12]. In the present study, (80%) patients showed albumin cytological dissociation on CSF examination. Elevated cerebrospinal protein levels are found in approximately 50% of patients in the first 3 days after onset of weakness, which increases to 80% after the first week [13]. Predictors of worse outcome in terms of severe disability and longer duration of hospital stay were older age of onset, rapid progression of disease and AMSAN variant of GBS.

All the patients who got admission to the hospital received supportive care. These included physical therapy, change of body position, measures to prevent aspiration pneumonia, deep vein thrombosis, fluid and nutritional support. Patients with Gullain Barre syndrome need careful and regular monitoring of respiratory function and autonomic dysfunction, such as heart rate, arrhythmia, and blood pressure [14]. Infections need to be prevented [15]. Deep-vein thrombosis, various symptoms of autonomic dysfunction have to be identified and treated early. Identification and management of pain, physiotherapy, and rehabilitation is important [16]. Psychosocial care is also reported to be important [17, 18]. Only one patient received intravenous immunoglobin.

Conclusion

Patients with Gullain Barre syndrome were diagnosed on the basis of symmetrical limb weakness and areflexia. Advanced age of onset, rapid progression of the illness and need for mechanical ventilation was found to be associated with worse outcome. Majority of patients improve with supportive care while some develop respiratory failure and needs mechanical intubation.

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