GUILLAIN BARRE SYNDROME, THE LEADING CAUSE OF ACUTE FLACCID PARALYSIS IN HAZARA DIVISION

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Background: Acute flaccid paralysis (AFP) can be caused by a number of conditions. A common preventable cause is poliomyelitis which is still being reported in Pakistan, Guillain Barre Syndrome (GBS), also known as Acute Inflammatory Demyelinating Polyneuropathy, is another common cause of acute flaccid paralysis. It is important to recognize GBS in childhood as parents consider all acute flaccid paralysis to be due to poliomyelitis. The present study was designed to know the frequency of different causes of acute flaccid paralysis in Hazara division. **Methods**: This is a retrospective analysis of cases of acute flaccid paralysis reported from various districts of Hazara division during the period January 2003 to December 2004. Acute flaccid paralysis was diagnosed clinically through history and clinical examination. The underlying cause of acute flaccid paralysis was investigated by appropriate laboratory tests, such as serum electrolytes, cerebrospinal fluid analysis, electromyogram, nerve conduction study and stool culture for polio virus and other enteroviruses. Diagnosis of Poliomyelitis was confirmed by stool testing for poliovirus. **Results:** 74 patients presented with AFP during the study period. 36 were male and 38 were female. Guillain Barre syndrome and enteroviral encephalopathy were the two leading causes of acute flaccid paralysis. Majority of the cases were reported from Mansehra district. Children of age groups 12 to 24 months and > 96 months constituted the majority (20% each). **Conclusion**: Guillian Barre syndrome was the leading cause of acute flaccid paralysis reported from various parts of Hazara division.

Key Words: Acute, Flaccid Paralysis, Guillain Barre Syndrome, Poliomyelitis.

INTRODUCTION

Acute flaccid paralysis (AFP) is a heterogeneous group of clinical conditions characterized by flaccid paralysis. It is caused by many conditions including poliomyelitis, Guillain Barre Syndrome (GBS), Transverse myelitis, toxins such as lead and metabolic neuropathies[1]. Poliomyelitis is important cause of AFP basically because of two reasons. Firstly, it is preventable through effective and timely vaccination and secondly, it causes permanent neuro-disability. It is also important from epidemiological point of view because member countries of World Health Organization (WHO) are running polio eradication campaign. Although poliomyelitis is now eradicated from the developed world, it is still being reported in the developing world. The purpose of this campaign is to eradicate polio from around the world. It is a great achievement of WHO vaccination programme that smallpox has been eradicated. Despite of all these efforts, sporadic cases and small outbreaks of polio are still being reported from various developing countries every year[2-6]. The present study was planned to evaluate the cases of acute flaccid paralysis reported from different districts of Hazara division from January 2003 to 2004, in order to know the frequency of its common causes. When a child presents with acute flaccid paralysis, the main concern is the possibility of poliomyelitis with lifelong disability. Diagnosis of other conditions that also cause flaccid paralysis can be difficult particularly for primary care health worker in the peripheral health services. Although poliomyelitis is vaccine preventable but it is not true for other causes of AFP. GBS has now been recognized as one of the leading causes of AFP in different parts of the world with varying prevalence rates. Guillain Barre Syndrome is an acute inflammatory demyelinating polyneuropathy. It is considered to be an immune response to possibly infections or toxins. Aberrant immune response provoked by different agents including Campylobactor Jejuni, Herpes simplex, Epstein Bar and Human Immunodeficiency viruses is thought to play some role in initiating the autoimmune response. GBS is gradually evolving clinical syndrome while poliomyelitis, on the other hand, presents with AFP from the onset. Differentiation between AFP due to polio and non-polio is also important from the public health point of view because of obvious risk of transmission.

As poliomyelitis is near eradication, it is a great importance to understand other causes of AFP. This will no doubt help in better management plan for such children.

MATERIAL AND METHODS

Data was collected by retrospective case notes analysis of patients of acute flaccid paralysis reported from different parts of Hazara division to polio control programme over two years period. Majority

of the cases were reported through the Department of Pediatrics, Ayub Teaching Hospital, Abbottabad. Although the Initial diagnosis was based upon clinical presentation, limited laboratory investigations were carried out on the basis of the clinical picture. In addition to routine investigation (Full blood count, Liver function test and Cerebrospinal fluid examination), neuro-imaging and electroneurophysiological studies were carried out in certain cases. Stool examination for polio virus was done in all the cases. After establishing the diagnosis, clinically stable cases were sent home but those who were critically ill or in those where the diagnosis was not so clear, were retained to complete the relevant investigations and medical care. All the patients were followed up for two months.

RESULTS

Results are shown in Tables 1-5. 74 cases of acute flaccid paralysis were reported from January 2003 to December 2004. 36 were male and 38 were female. Majority, 35 (47.29 %) of the cases were suffering from Guillain Barre Syndrome while only one case was confirmed with Poliomyelitis (Table 1). Out of 35 cases of GBS, 19 were female and 16 were male. Most of the patients belonged to two age groups i.e. 12 to 24 months and >96 months respectively (Table 2). Majority of these cases were reported from Mansehra district (Table 4). One patient was critically ill at presentation and unfortunately died. Five patients were clinically stable and discharged after initial hospitalization for 72 hours as there was no further progression of paralysis. Twenty-seven patients were clinically unstable at presentation neurologically with poor cardio-respiratory status. They were kept in hospital for longer time until they were stable. Two patients developed respiratory failure and were referred to other hospitals for respiratory support.

Table 1. Frequency distribution of cases of AFP (n=74)

Cause	No of cases	%
Guillain barre syndrome	35	47.29
Enteroviral Encephalopathy [a]	07	9.45
Encephalitis[b]	05	6.75
Cerebral palsy	03	4.05
Nonspecific viral infection	05	6.75
Transverse myelitis	02	2.70
Cord lesion[c]	04	5.40
Hypokalemia	03	4.05
Malnutruition[d]	02	2.70
Cerebrovascular accident	05	6.75
Trauma spine	02	2.70
Poliomyelitis	01	1.35

a. Non polio enterovirus isolated on stool culture in these cases.
b. No virus isolated in these cases.
c. Cord compression (knowing the exact etiology of compression was beyond the scope of the study).
d. Hypokelemia secondary to chronic diarrohea and malnutrition.

GBS and Enteroviral encephalopathy were the two leading causes of acute flaccid paralysis, 47.29% and 9.45% respectively. Other causes were also found (Table 1). Only one case of poliomyelitis was reported from Mansehra district during the study period. She was a 12 months old girl with unclear vaccination status. All patients with GBS made full recovery except one.

Table 2. Distribution of cases according to age

Age in months	Number of cases	%
<12	06	17.1
12-24	07	20.0
24-36	02	5.7
36-48	02	5.7
48-60	04	11.4
60-72	02	5.7
72-84	02	5.7
84-96	03	8.6
>96	07	20.0

Table 3. Gender distribution of AFP

Sex	GBS	Others
Males	16	20
Females	19	19

Table 4. District wise distribution of cases of GBS (n = 35)

District	Number of cases	%
Mansehra	15	42.80
Abbottabad	10	28.57
Haripur	05	14.28
Kohistan	03	8.57
Batagram	02	5.70

Table 5. Distribution of GBS according to outcome

Expired	Referred	Clinically unstable	Clinically stable
1	2	27	5

DISCUSSION

Acute flaccid paralysis is an alarming condition of diverse etiology. It needs proper evaluation at presentation to ensure the delivery of effective and timely management. GBS is one of the important causes of AFP. This has been highlighted by the previous studies[7,8]. This is an acute demyelinating polyradiculoneuropathy believed to be caused by immune mediated processes with a mortality rate of 4-5%[6]. Approximately 85% patients recover spontaneously while 10% patients need hospitalization. Its prevalence has been reported to vary from region to region. A study conducted in HongKong, during 1997 to 2002, reported a prevalence rate of 42% [9]. 45% prevalence rate from

Oman and 47% from Australia have also been reported [10.11]. Alcala H, reported a prevalence rate of 63% from Mexico in 1988 to 1991[1]. Highest prevalence rate has been reported from Honduras, Central America, during 1989 to 1999 [12]. Most common presentation of GBS is a symmetrical, ascending,, areflexic paralysis as against asymmetrical paralysis of poliomyelitis. Respiratory paralysis is the most deadly complication of GBS. Assisted respiration and other specialized therapies are lifesaving if instituted early.

Results of our study are in accordance with some of the earlier ones[7] and different from the others [9,10]. Predominance of GBS in female in our study was different from male predominance in an earlier study but this could be due to small sample of our study group. A study conducted over 11 year period on 546 patients at the Department of Pediatrics, Neurology Hospital Honduras, Central America, GBS was found in 72.2% patients with AFP. The study reported annual incidence of GBS in pediatric patients to be 1.37/100,000, more common in boys. One to four years age group was most commonly affected and the condition was found to be more prevalent in rural areas than urban population[12]. This finding is consistence with our observations. However, we also observed a higher prevalence rate (20%) in age group >8 years that was not observed in the previous study. Moreover, mortality rate in our study was 2.85% compared with 4 -5% reported by the other researchers [11, 12].

CONCLUSION

We strongly recommend that there is need to study a larger group of children with AFP and to find out its prevalence, etiology and perhaps its clinical outcome in Pakistan. This is particularly important since the incidence of poliomyelitis has significantly reduced and almost eradicated.

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