ORIGINAL ARTICLE

RETROSPECTIVE STUDY OF ACUTE FLACCID PARALYSIS CASES FROM A TERTIARY CARE CENTRE IN AMRITSAR

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Abstract

We conducted a retrospective study to evaluate the most common etiology behind Acute flaccid paralysis (AFP). Thirty four cases reported to our centre from 2008-2010. Most common etiology causing AFP was found to be Guillian Barre Syndrome in 55.9% of the patients followed by viral myositis. Mean hospital stay for a patient with AFP was 16.3±10.4 days. Paediatric Intensive care was required in 20.6% patients and the mortality rate of patients with AFP was 5.9%.

Key Words: Acute flaccid paralysis, Guillian Barre Syndrome, poliomyelitis.

Introduction

Acute Flaccid Paralysis (AFP) is defined as acute onset of focal weakness or paralysis characterized as flaccid (reduced tone), without other obvious cause in children < 15 years old (1). When a child presents with acute flaccid paralysis, the main concern is the possibility of poliomyelitis as it leads to lifelong disability. The extensive use of polio vaccines since 1954 has virtually eliminated the disease in developed countries (2). The South East Asia Region (SEAR) contains the largest remaining reservoir of wild polio virus in the world. The incidence of reported poliomyelitis cases has declined by 90% (3). AFP surveillance continues to be a critical component of the World Health Organization (WHO) global polio eradication campaign (4). WHO estimates a background annual incidence of at least 1 case of AFP per 100,000 population less than 15 years old, in the absence of wild poliovirus transmission. This rate can be used to evaluate the sensitivity of AFP surveillance activities (5).

Other causes of AFP include Guillain Barre Syndrome (GBS), transverse myelitis, viral syndromes, spinal cord compromise (low back trauma, abscesses or tumors), toxins (lead, botulism etc), metabolic neuropathies (hypokalemia, hypokalemic periodic paralysis, hypophosphatemia, polymyositis and dermatomysitis) and tick bite (6). GBS still remains the leading cause of AFP in developed as well as developing countries. The objectives of this review are to describe the incidence and differential diagnosis of potential causes of AFP, including distribution by age, to determine the average duration of hospital stay of patients with AFP and to determine the outcome in terms of mortality and survival.

Methods and Materials

Data was collected by retrospective analysis of patients of AFP who reported to our hospital from Amritsar, Gurdaspur and Kapurthala districts in last 3 years between 2008-2010. All the patients with lower limb weakness were admitted in our tertiary health care center and work up was done. Although the initial diagnosis was based upon clinical presentation, few laboratory investigations were carried out on the basis of the clinical picture. Two stool samples were collected from each patient as per guidelines given under National Polio surveillance project. All the stool samples were sent to Central Research Institute (CRI), Kasauli for isolation of polio virus. Complete blood count, liver function test and creatine phosphokinase (CKP) levels were done in all the subjects. Lumbar puncture was done in 29 subjects. Parents of 5 patients refused for cerebrospinal examination. Magnetic resonance

imaging (MRI) of brain or spine and electrophysiological studies were carried out in certain cases when it was required or diagnosis was doubtful.

GBS was diagnosed on the basis of albumino cytological disassociation in cerebrospinal fluid (CSF) examination or by nerve conduction studies. Viral myositis was diagnosed on the basis of raised CPK levels.

Results

Male: female ratio in the study was 20:14. As shown in table 1, maximum number of children were in the age group of over 9 years followed by 1-2 years and 3-4 years. The age of the youngest child was 16 months and that of the oldest child was 161 months old. Commonest cause of AFP was GBS in 19 patients, as shown in Table 2. In 17 (89.5%) out of the 19 children albumino cytological disassociation was noticed in CSF while the remaining 2 were diagnosed on the basis of nerve conduction studies. Hypokalemia leading to lower limb weakness was found in 3 (8.8%) children. Of which 1 had renal tubular acidosis and other 2 were associated with severe malnutrition. Three (8.8%) children were diagnosed with encephalitis but no virus was isolated. Polio virus was not isolated from stool specimen of any of the case.

All the cases were managed on indoor basis, out of them, seven (20.85%) patients required admission in Paediatric Intensive Care Unit (PICU). (TABLE 2). Two patients of GBS and 1 of encephalitis had respiratory compromise and required Advanced life support (ALS). One patient each of GBS and encephalitis expired.

The mean duration of stay in the hospital of all the 34 patients was 16.3±10.4 days. The longest stay was of the patient with trauma spine (35 days). Average stay for each disease is depicted in Table 2.

Discussion

Active surveillance of AFP in children less than 15 years old plays pivotal role in monitoring suspected cases of paralytic poliomyelitis and provides evidence of the elimination of indigenous wild poliovirus . In the present study no case of wild polio virus or vaccine associated polio virus was isolated. GBS is one of the important causes of AFP in our study with over half the patients being affected. This has been highlighted by the previous studies where incidence of GBS leading to AFP has ranged from 47.3-72.2% (1,6-11). In a study done by D'Souza et al (8) in Australia, 19% had transverse myelitis. In our study only 5.9% of children were diagnosed with transverse myelitis.

In our study 20.5 % of children required intensive care in comparison to 33% of children in a similar study in Australia. In our study 10.5% of GBS patients required ventilator. In a study done by Koul et al (12) in Oman 18.3% children were on ventilator. Very few patients had respiratory paralysis and bulbar involvement needing less intensive care and ventilator support in our study.

Mortality rate in our study was 5.9% which included a patient each of GBS and encephalitis each which is similar in other studies (1,13). Mortality in our cases was attributed to late presentation of these patients to

Table 1: Age wise distribution of total cases.

AGE (months)	Number of cases (n=34) (%)
12-24	6 (17.6)
25-36	4 (11.8)
37-48	6 (17.6)
49-60	1 (2.9)
61-72	3 (8.8)
73-84	0
84-96	4 (11.8)
97-108	3 (8.8)
>108	7 (20.6)

Table 2 - Distribution of cases on the basis of their diagnosis

DIAGNOSIS	Number of cases(n=34)	Number of cases requiring intensive care	Average duration of stay in the hospital in days	Survival
Guillain Barre Syndrome	19 (55.9%)	3 (15.8%)	20.1±8.2	18 (94.7%)
Viral myositis	6 (17.6%)	0	3.83 ±1.47	6 (100%)
Encephalitis	3 (8.8%)	3 (100%)	9.3 ± 5.03	2 (66.6%)
Hypokalemia	3 (8.8%)	1 (33.3%)	9 ± 5.56	3 (100%)
Transverse myelitis	2 (5.9%)	0	29 ± 4.24	2 (100%)
Trauma spine	1 (2.9%)	0	35 ± 0	1 (100%)

our hospital when they already had respiratory failure or septicemia. Average duration for partial recovery was 20 days for patients of GBS in our study which was much shorter than that depicted by Koul et al (69 days but was for complete recovery) (12). In our study we observed the patients till the recovery phase started. We could not find out the complete days of recovery of these patients because of financial constraints and poor compliance of the patients. So the duration mentioned above is not the true depiction of the recovery time.

Conclusion

GBS is the most common etiology behind AFP and encephalitis is the most common condition causing AFP that requires Intensive care.

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