



ORIGINAL RESEARCH PAPER

Neurology

ACUTE FLACCID PARALYSIS-REVIEW OF CASES WITH DIVERSE PRESENTATIONS

KEY WORDS:

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ABSTRACT

This study was done in 50 patients at the department of neurology,Madurai medical college,Govt rajaji hospital from March 2019 to august 2019.AFP cases were diagnosed based on detailed history including onset,duration,precipitating factors,relieving factors,risk factors, recurrences ,associated symptoms and physical examination. The underlying etiology was ascertained by appropriate laboratory investigations such as RBS, serum potassium levels, CSF analysis, electrophysiological studies and Neuro imaging. Most of the patients belonged to Mean age group 21 to 40yrs 19(38%). Data was collected and statistical analysis was done.Males constituted 78% (39/50) and females constituted 22% (11/50). Out of 50 patients,14(28%) were suffering from Acute Inflammatory Demyelinating Polyneuropathy(AIDP), 4(8%) from Acute motor axonal neuropathy(AMAN), 3(6%) from Road traffic accident(RTA), 3(6%) from Hypokalemic periodic paralysis(HPP),3(6%)from snake bite,2(4%) from post vaccination induced AIDP,2(4%)from Miller fisher variant,2(4%) from NMOSD,2(4%) from recurrent GBS,2(4%)from transverse myelitis,2(4%) from diabetic polyradiculopathy, others 11(22%). AIDP was the most common cause of AFP in all age groups. Good prognosis noted in these group of patient 26(52%)

INTRODUCTION:

AFP presents with the rapid onset of weakness in one or more limbs, and has both infectious and non-infectious causes. The term 'flaccid' indicates the absence of spasticity or other signs of disordered central nervous system motor tracts such as hyperflexia, clonus, or extensor plantar responses[1] Lesions of the anterior horn cell including poliomyelitis, the spinal cord (as in transverse myelitis), the peripheral nerve (as in Guillain-Barré syndrome [GBS]) and toxic neuropathies from various infections including diphtheria, the neuromuscular junction (as in botulism), and muscle disorders, such as metabolic myopathies including hypokalemia and myositis[2] Various data analyses of AFP cases over the last two decades have consistently reported GBS as the most common cause of nonpolio AFP all over the world,[3,4]

AIMS AND OBJECTIVES:

Our study was designed to know the clinical characteristics, and differential diagnosis of causes of AFP, including distribution by age, gender, investigations treatment and prognosis.This was a prospective observational study

MATERIAL AND METHODS:

The study was done in 50 patients at the department of neurology,Madurai medical college from March 2019 to august 2019.All patients presented with Acute flaccid paralysis were included. AFP cases were diagnosed based on detailed history including onset,duration,precipitating factors,relieving factors,risk factors, recurrences ,associated symptoms and physical examination. The underlying etiology was ascertained by appropriate laboratory investigations such as RBS, serum potassium levels, CSF analysis, electrophysiological studies and Neuro imaging. Inclusion criteria: All patients presented with acute flaccid paralysis.Statistical analysis was done with data available.

RESULTS

Most of the patients belonged to Mean age group 21 to 40yrs 19(38%). Males constituted 78% (39/50) and females constituted 22% (11/50). Out of 50 patients,14(28%) were

suffering from Acute Inflammatory Demyelinating Polyneuropathy(AIDP), 4(8%) from Acute motor axonal neuropathy(AMAN), 3(6%) from Road traffic accident(RTA), 3(6%) from Hypokalemic periodic paralysis(HPP),3(6%)from snake bite,2(4%) from post vaccination induced AIDP,2(4%)from Miller fisher variant,2(4%) from NMOSD,2(4%) from recurrent GBS,2(4%)from transverse myelitis,2(4%) from diabetic polyradiculopathy, others 11(22%)

DISCUSSION

GBS was the most common cause of AFP in our study, which is consistent with the findings of other studies5-9. This syndrome occurs throughout the world with an annual incidence of 0.4-4 (Mean 1.3) cases per 100 000 population. Our surveillance data suggest that about 21 cases of GBS per year will be diagnosed with paralytic presentations in Madurai tamilnadu, india. our study was mainly conducted to know the clinical characteristics and differential diagnosis of individual causes of AFP, including distribution by age, gender, and time.

Various data analysis of AFP cases over the last two decades has consistently reported GBS as the most common cause of AFP all over the world with a frequency ranging from 20% to 72.2%. Mostly, the frequency lies between 22.3% and 37.29%, although the results of our study conform to the rest of the national and international literature in having GBS as the most frequent cause of AFP, the frequency stands on higher side at 48% , may be because of cumulative frequency of GBS across all age ranges, unlike to most other studies carried out in children <15 years.

In our study, the frequency of HP was 6%, consistent with other studies Most AFP studies conducted in children <15 years of age, do not mention miller fischer syndrome to occur with a significant frequency, as in a study by Morris et al. with frequency of 2/143 (1.4%). In our study, MFS was present with frequency of 4%, likely due to more aged profile of our patients. The frequency of transverse myelitis in our study, 4%,

was consistent with other studies.¹⁰

AMAN, subtype of GBS, was present with a frequency of 8% of AFP cases and 49% of GBS cases consistent with 3.2% of GBS cases in a study by Koul et al.[11] but lower than a study in China. The frequency of ADEM in our study of 1.9% lies between 3.5% and 26.6% in other studies. Viral meningoencephalitis varies in frequency from 6.75% to 12.5% in other studies,[12] which in contrast to our study stands at 1.9%. The males outnumbered (57.5%) females (42.5%), which was in accordance with a study by Shah et al.[13]

Most cases of AFP, (39.6%) occurred during spring season (March to May), which was in contrast to summer season (June to August) in a study by Lam et al.[14]

However, in a study by Prevots and Sutter,[the relative risk for GBS according to sex varied with age. This could be due to small sample size of our study and regional variation in the occurrence of GBS.

In our study, we included 3(6%) from Road traffic accident(RTA), 3(6%) from snake bite, 2(4%) from post vaccination induced AIDP, 2(4%) from Miller fisher variant. 20% of deaths due to acute respiratory distress from GBS.

Age in years	No. of cases	Percentage
< 20	9	18
21 - 40	19	38
41 - 60	17	34
> 60	5	10
Total	50	100
Mean	37.06	
SD	16.494	

Gender	No. of cases	Percentage
Male	39	78
Female	11	22
Total	50	100

Diagnosis	No. of cases	Percentage
AIDP	14	28
AMAN	4	8
RTA	3	6
HYPOKALEMIC PERIODIC PARALYSIS	3	6
SNAKE BITE	3	6
AIDP-POST VACCINATIONAL	2	4
MILLER FISCHER VARIANT	2	4
NMOSD	2	4
RECURRENT GBS	2	4
TRANSVERSE MYELITIS	2	4
DIABETIC POLYRADICULOPATHY	2	4
OTHERS (each one)	11	22
Total	50	100

NEUROIMAGING	No. of cases	Percentage
NORMAL	35	70
BASILAR ARTERY THROMBOSIS	1	2
LETM	5	10
TM	1	2
VIRAL ENCEPHALITIS	1	2
DEMYELINATION	1	2
HYPERINTENSE RADICLES	2	4
CEREBRAL DEMYELINATION	1	2

DIFFUSE AXONAL INJURY	3	6
Total	50	100
PROGNOSIS	No. of cases	Percentage
IMPROVED	26	52
RESIDUAL DEFICIT	14	28
DEATH	10	20

TREATMENT	No. of cases	Percentage
ANTI TOXIN	3	6
STERIODS	12	24
PLEX	6	12
POTASSIUM CORRECTION	3	6
SUPPORTIVE CARE	5	10
IVIG	16	32
RITUXIMAB	1	2
ANTI VIRAL	1	2
GLYCEMIC CONTROL	2	4
IMMUNOSUPPRESSANTS	1	2
Total	50	100

NERVE CONDUCTION STUDY	No. of cases	Percentage
AXONAL	11	22
DEMYELINATION	19	38
MIXED AXONAL DEMYELINATION	1	2
NORMAL	16	32
SLOW RNS: PRESYNAPTIC	3	6
Total	50	100

S. Pottasium	No. of cases	Percentage
< 3	3	6
3 - 4	26	52
> 4	21	42
Total	50	100
Mean	3.908	
SD	0.501	

RBS	No. of cases	Percentage
< 100	9	18
101 - 200	19	38
201 - 300	17	34
> 300	5	10
Total	50	100
Mean	188.14	
SD	103.467	

CONCLUSIONS

AIDP was the most common cause of AFP in all age groups. Good prognosis noted in these group of patient 26(52%)

REFERENCES:

- World Health Organization. WHO/MNH/EPI/93.3. Geneva; 13. Marx A, Glass JD, Sutter RW.
- Differential diagnosis of acute flaccid paralysis and its role in poliomyelitis surveillance. Epidemiol Rev 2000;22:298-316993.
- Morris AM, Elliott EJ, D'Souza RM, Antony J, Kennett M, Longbottom H. Acute flaccid paralysis in Australian children. J Paediatr Child Health 2003;39:22-6.
- Lam RM, Tsang TH, Chan KY, Lau YL, Lim WL, Lam TH, et al. Surveillance of acute flaccid paralysis in Hong Kong: 1997 to 2002. Hong Kong Med J 2005;11:164-73.
- Davarpanah M, Bakhtiari H, Mehrabani D, et al. 12-years surveillance of poliomyelitis and acute flaccid paralysis in Fars Province, Southern Iran. Iran Red Crescent Med J 2008;10(4):288-93.
- Whitfield K, Kelly H. Using the two-source capture-recapture method to estimate the incidence of acute flaccid paralysis in Victoria, Australia. Bull World Health Organ 2002;80(11):846-51.
- D'Souza R, Kennett M, Antony J, et al. Acute flaccid paralysis surveillance in Australia progress report 1995-1998. Commun Dis Intell 1999;23(5):128-31.
- Hussain IH, Ali S, Sinniah M, et al. Five-year surveillance of acute flaccid paralysis in Malaysia. J Paediatr Child Health 2004;40(3):127-3.
- Varughese P. Acute flaccid paralysis, Canadian Paediatric Surveillance Program - 2003 Results. Canadian Paediatric Society (Public Health Agency of Canada)

- 10 Morris AM, Elliott EJ, D'Souza RM, Antony J, Kennett M, Longbottom H. Acute flaccid paralysis in Australian children. *J Paediatr Child Health* 2003;39:22-6.
- 11 Koul R, Al-Futaisi A, Chacko A, Fazalullah M, Nabhani SA, Al-Awaidey S, et al. Clinical characteristics of childhood Guillain-Barré syndrome. *Oman Med J* 2008;23:158-61.
- 12 Anis-ur-Rehman, Idris M, Elahi M, Jamshed, Arif A. Guillain-Barre syndrome: The leading cause of acute flaccid paralysis in Hazara division. *J Ayub Med Coll Abbottabad* 2007;19:26-8.
- 13 Ullah Shah F, Salih M, Malik IA. Clinical evaluation of patients with acute flaccid motor weakness. *Pak J Med Res* 2002;41:58-63.
- 14 McKhann GM, Cornblath DR, Griffin JW, Ho TW, Li CY, Jiang Z, et al. Acute motor axonal neuropathy: A frequent cause of acute flaccid paralysis in China. *Ann Neurol* 1993;33:333-42.
- 15 Prevots DR, Sutter RW. Assessment of Guillain-Barre syndrome mortality and morbidity in the United States: Implications for acute flaccid paralysis surveillance. *J Infect Dis* 1997;175:S151-5