

Paraplegia in Pediatric Population; Frequency and Etiology

HINA AZHAR¹, WAJIHA RIZWAN², ANSAR LATIF³, AMRITA RIZWAN⁴, ANILA ANSAR⁵, SHER AFGHAN⁶,

¹Senior Registrar Developmental Pediatrics, Children Hospital, Lahore.

²Assistant Professor, Department of Pediatrics, Khawaja Muhammad Safdar Medical College, Sialkot

³Associate Professor, Department of Surgery, Khawaja Muhammad Safdar Medical College, Sialkot

⁴Medical Officer, Department of Pediatrics, Khawaja Muhammad Safdar Medical College, Sialkot

⁵Associate Professor, Department of Gynaecology and Obstetrics, Allama Iqbal Memorial Teaching Hospital, Sialkot.

⁶SMO, THQ Hospital, Daska, Sialkot

Correspondence to Dr. Ansar Latif, Email: ansarlatif2013@gmail.com . Cell: +923217103994.

ABSTRACT

Aim: To see the frequency and causes of paraplegia in pediatric population.

Study Design: Cross sectional survey.

Place and Time of Study: Department of Pediatrics Jinnah Hospital Lahore. from 1st June 2017 to 15th November, 2018.

Methodology: One hundred and twenty cases, age less than 12 years.

Results: The frequent age group of patients presenting with paraplegia is 5-8 years of age accounting by 41.7% Of patients, followed by 31.7% of patients with age group of 9-12 years. There were 43% males and 56% females. GBS proved to be the most frequent cause of paraplegia in children accounting about 38.3% of 120 patients presenting with paraplegia, followed by 25% Of patients suffering from Potts disease. Transverse myelitis was also an important cause of paraplegia with distribution of 11.7% of patients. There were 10 patients with accidental trauma with percentage of 8.2%. Poliomyelitis was an infrequent cause of paraplegia with only 6 patients with only 5% of distribution.

Conclusion: GBS was found to be the most frequent cause of paraplegia, followed by spinal tuberculosis and transverse myelitis. Poliomyelitis proved to be less frequent cause of paraplegia in only 5% of patients. Commonly affected age group is 5-8years with predominance of females. Almost half of the patients were vaccinated.

Key words: paraplegia, Guillain Barre Syndrome (GBS), poliomyelitis.

INTRODUCTION

Paraplegia is weakness of both legs either due to spinal cord lesions or nerve lesions supplying the muscles or direct injury of muscles. All ages are affected but incidence is very high in first ten years of life. Major contributing factors are poverty, poor living conditions, infections and inadequate immunizations. Paraplegia is a major cause of disability in childhood. There is high rate of morbidity in children that often persists in adulthood. Prolonged rehabilitative care is required for these children that is not only costly but also serves as social burden on the family and the society. Poliomyelitis is a common preventable cause of paraplegia. They also concluded that 8.5% cases of paraplegia are due to polio enteroviruses. Vaccine associated viruses have also been listed as a cause of paraplegia in 1.5% cases. GBS as most common cause of childhood paralysis in Hazara division of Pakistan, 50% of these cases present as acute flaccid paralysis. Acute transverse myelitis is also a cause of paraplegia in 13% cases with or without sensory symptoms and bladder dysfunction. In 2010 it was established that spinal tuberculosis (pott's disease) presents with paraplegia. Study In Nigeria , spinal TB is the most common cause of paraplegia accounting 44.9% of cases. Spinal cord injury has also been documented to cause paraplegia in 33% of cases. Other rare causes are spinal epidural hemorrhage, spinal epidural mass, primary and secondary tumors and vertebral disc herniation. Paraplegia has also been proved as a complication of spinal epidural anesthesia in 2010 in only 0.02% of cases. Investigations to rule out different cases are Montoux test, X-ray lumbosacral spine, CSF examination, EMG studies, stool culture and MRI spine.

Only 2 studies have been done in our country to children and there is high morbidity associated with it. No document causes of paraplegia in our country. Moreover

Received on 13-03-2019

Accepted on 23-08-2019

paraplegia is emerging as major neurological disease in recent data is available in literature regarding the most frequent cause of paraplegia. By conducting this study ,we wanted to see the frequency and common causes common causes of paraplegia in Lahore region of Punjab..

METHODOLGOY

This was a descriptive study including 120 subjects presenting with weakness of legs (acute or gradual) in both gender and less than 12 years of their age whereas those with History of asphyxia at the time of birth, delayed development and mental retardation, Dysmorphic children / Syndromic children, Children with multiple anomalies and Spina bifida were excluded from the study. Complete demographic profile was taken. A complete history and physical examination were carried out to look for evidence of any cause of paraplegia like Poliomyelitis, Transverse myelitis, Pott's disease GBS and Accidental trauma to spinal cord. Any other cause other than above mentioned was checked under heading of others. The data was analyzed by entering in SPSS v 22. Mean±SD was calculated for age, frequency and percentages were recorded for gender and causes for paraplegia like poliomyelitis, transverse myelitis, Pott's disease GBS, accidental trauma to spinal cord, spinal cord malignancies and others also.

RESULTS

Table 1: Distribution of patients according to age groups

Valid	Frequency	%	Valid%	Cumulative%
1-4 years	32	26.7	26.7	26.7
5-8 years	50	41.7	41.7	68.3
9-12 years	38	31.7	31.7	100.0

Table 2: gender of patients

	Frequency	%	Valid%	Cumulative%
Male	52	43.3	43.3	43.3
Female	68	56.7	56.7	100.0

Table 3: Causes of paraplegia

	Frequency	%	Valid%	Cumulative%
GBS	46	38.3	38.3	38.3
Pott's disease	30	25.0	25.0	63.3
transverse myelitis	14	11.7	11.7	75.0
accidental trauma	10	8.3	8.3	83.3
Poliomyelitis	6	5.0	5.0	88.3
Others	14	11.7	11.7	100.0

Table 4: Distribution of patients according to type of paraplegia

	Frequency	%	Valid%	Cumulative%
upper motor neuron type	55	45.8	45.8	45.8
lower motor neuron type	65	54.2	54.2	100.0

DISCUSSION

The development of paraplegia in a patient in a developing country is particularly ominous. In a poverty-stricken community the patient is likely to delay seeking medical advice, and the ultimate loss of working and earning capacity has an especially serious impact. Even if he succeeds in reaching a hospital he is unlikely to find skilled medical and nursing care, and satisfactory follow-up care will seldom be available.

Transport difficulties in the rural areas of Pakistan limit the accessibility of hospitals, and probably many patients in outlying areas failed to obtain any hospital treatment. The insidious onset of paraplegia contributes to the delay in seeking hospital treatment. Many patients present only when their disabilities become insupportable.

In our study about 120 patients were studied with the complaint of paraplegia over the period of 6 months. GBS was found to be most frequent cause of paraplegia in children. After that spinal tuberculosis was present, followed by transverse myelitis. Among rare causes spinal cord tumors remained most common. The most frequent age group is 5-8 years of age. Almost half of patients were vaccinated. The most common clinical manifestation was only weakness of legs, with no sensory level. Most of patients remained improved at the end of study. A study done in the province of Sindh in 2010 on non-polio causes of acute flaccid paralysis also showed GBS as the most common cause¹³. This result was similar to our study..

E M SCRIMGEOUR in Tanzania done a study on non-traumatic causes of paraplegia and found spinal tuberculosis as most common cause, followed by spinal cord tumors¹⁴. In our study spinal tuberculosis constituted second most common cause of paraplegia. This study also included paediatric age group like ours. Most of patients got improved over period of time like our observation.

Anis-ur Rehman and others at Ayub teaching hospital, Abbotabad also found out GBS as most common cause of paraplegia like our result³. But in contrast to ours they found it in age group of 1-3 years.

East Afr Med in 1994 also had also done an aetiological survey on paraplegia and found tuberculosis on the top, followed by transverse myelitis and GBS after that. In our study most of the patients were suffering from these three conditions .but the order was different because that study was done on adults, not on paediatric age group like our study.

Srivastava and Sanghava established spinal TB as most common cause of paraplegia, followed by transverse myelitis. There were 30% cases with spinal TB and 20% cases with

transverse myelitis. These results were almost similar to our study in frequencies of these two diseases. MRI and CT scan were used for diagnosis, as we had done.

In Kano, Nigeria Spinal tuberculosis, transverse myelitis and GBS were found to be most frequent causes of paraplegia. Weakness of legs were present in 100% of patients, as in our study. But in contrast to our study that was done for adults.

Ahmad and Rehman had done a one year surveillance data on acute flaccid paralysis² and found poliomyelitis in only 8% of patients. We also found polio in minimum number of patients accounting only 5%.

CONCLUSION

GBS was found to be the most frequent cause of paraplegia, followed by spinal tuberculosis and transverse myelitis. Poliomyelitis proved to be less frequent cause of paraplegia in only 5% of patients. Commonly affected age group is 5-8 years with predominance of females. Almost half of the patients were vaccinated.

REFERENCES

- Shah I. Paraplegia in children. Paediatric on Call-Child health care 2010 Dec 26.
- Ahmad A, Rehman A. One Year Surveillance Data of Acute Flaccid Paralysis at Bahawal Victoria Hospital. Pak J Med Sci 2007 ;Vol23(3):308-312.
- Rehman A , Idris M , Elahi M, Arif A, Guillain Barre Syndrome, The Leading Cause of Acute Flaccid Paralysis in hazara Division. J Ayub Med Coll Abbottabad 2007 ; vol19(1):26-28.
- Owolabi LF , Ibrahim A , Samaila AA .Profile and Outcome Of Non Traumatic Paraplegia in Kano, northwestern Nigeria. Annals of African Medicine 2011 April-June; vol10 (2):86-90.
- Owolabi LF, Nagoda MM, Samaila AA, Ali yu I. Spinal Tuberculosis in adults: A study of 87 cases in Northwestern Nigeria. Neurology Asia 2010;vol15(3):139-244.
- Sidram V, Tripathy P, Ghorai SP, Ghosh SN . Spinal cord injury without radiographic abnormality (SCIWORA) in children: A Kolkota experience. Indian Journal of Neurotrauma. (IJNT)2009;vol6(2):133-136.
- Singh H , Aggarwal S ,Gupta R ,Yadav RK . Spontaneous Spinal Epidural Hemorrhage: AN Unusual Cause of Paraplegia. JIACM 2008;vol9(2):136-139.
- Amalraj P, Smlal S. Unusual case of paraplegia. An Indian Acad Neurol 2009Jul-sep;vol12(3):188-190.
- Ali M, Khan Z, Sharafat S, Mehmood M ,Khan P, Usman M. TheS prctrum of Intraural Spinal Tumors. JPMI 2010; 24(3)217-221.
- Erwin MJ, Cornips MD, Marcus LF, Jnnssen , Emile AM. Thoracic Disc Herniation and Acute Myopathy: Clinical Presentation, Neuro Imaging Findings, Surgical Considerations, and Outcome. J Neurosurgery Spine.2011 April;vol14:520-528
- Kim SH, Song GS, Son DW, Lee SW. Neurological Complication following Spinal Anesthesia in a patient with Spinal Intradural Extramedullary Tumor . J Korean Neurosurg Soc2010 Dec;vol48(6):544-546.
- Lagunju IA, OkaforOO. An analysis of Disorders seen at the Paediatric Neurology Clinic, University College Hospital, Ibadan, Nigeria. WAJM 2009;Vol28(1):328-332.
- Memon IA, Jamal A, Arif F, Murtaza G. Causes Of Non-Polio Acute Flaccid Paralysis In Children Residing In The Province Of Sindh: Medical Channel ; Jul 2010 Vol 16 (3):357-361.
- Scrimgeur EM. Non-traumatic paraplegia in northern Tanzania: British Medical Journal. 1981Oct10;Vol283.