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DEMOGRAPHIC AND ETIOLOGIC PROFILE OF ACUTE NON-TRAUMATIC QUADRIPARESIS/QUADRIPLEGIA IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Aim: To identify the etiological profile of nontraumatic myelopathies.

Materials and Methods: Present study was a prospective cross- sectional type of study was conducted among 40 patients diagnosed with acute onset non traumatic quadriplegia / quadriparesis visited the department of Medicine of Dr. D. Y. Patil Medical College and Hospital Pimpri, Pune. Detailed medical history was taken for all selected patients. They were examined in detail with careful general, systemic and neurologic examination according proforma. Examination was done in a separate examination room to interpret the site of the neurological lesion through clinical signs and to reach a provisional diagnosis, before subjecting to further biochemical and radiological investigations according to the study design.

Results: Mean age of patients in the study population was 43.92+14.36 years. Majority of them (32.5%) were in age group of 51 to 60 years. Of them 65% were males and 35% were females. Majority 60% had onset of quadriparesis more than 5 days, 27.5% had 1 to 5 days and 12.5% had onset <24 hours. Breathlessness was reported in 57.5 % of cases, fever in 52.5 percent, and petechiae/rash in 27.5 %.Majority 25% had GBS followed 12.5% had cervical disc prolapsed and other etiologies.

Conclusion: Most common cause of non-traumatic quadriparesis was Guillian Barre Syndrome followed by cervical disc prolapsed.

Keywords: Quadriparesis, Non-traumatic, Guillian Barre Syndrome

INTRODUCTION

The term "Myelopathy" implies diseases of the spinal cord. They are broadly classified into compressive and non compressive myelopathies.

The consequence of myelopathy can be motor, sensory, autonomic or a combination of these deficits which can range from mild spasticity to severe quadriplegia or paraplegia leading to severemorbidity.[1]

Non traumatic myelopathy has a variety of aetiologies. Imaging plays a crucial role in accurate assessment of the level of lesion and in diagnosing the underlying etiology. Magnetic Resonance Imaging (MRI) is the mainstay in evaluation of myelopathy.[2,3]

Studies conducted in South East Asian countries as well as in African countries reported vertebral tuberculosis the most common etiology for compressive myelopathy.[4] In Indian study on acute non traumatic paraperes is in Indian population 50% of cases accounted by compressive etiology and 30% non-compressive and the rest 20% of unknown causes. Most common etiology being vertebral tuberculosis or Pott's spine (40%) followed by acute transversemyelitis (26%). MRI helps to confirm the site andetiology.[5]Presentstudy is aimed to identify the etiological profile of nontraumatic myelopathies of patients admitted in our Institution.

MATERIALS AND METHODS

Present study was a prospective cross-sectional type of study was conducted among 40 patients diagnosed with acute onset non traumatic quadriplegia / quadriparesis visited the department of Medicine of Dr. D. Y. Patil Medical College and Hospital Pimpri, Pune, after approval from the Ethical Committee of the Institute.

Inclusion criteria:

- Age > 12 years, Male and Female

- Patients with history of acute quadriparesis /quadriplegia with onset of symptoms less than 4 weeks
- Willing to participate

Exclusion criteria:

- Age < 12 years
- History of trauma
- History of more than 4 weeks of quadriplegia/ quadriparesis
- Pregnancy
- Not willing to participate

Data collection

The participants/guardians signed a written informed consent form. The study included patients who presented to the Medicine Department and met the inclusion criteria. Standard questions about clinical profile, addictions, comorbidities, background and family history, socio demographic characteristics, and so on were asked as part of a pre- designed questionnaire programme. Questions about past and current medical history, as well as health-seeking behaviour, were also included in the questionnaire.

Methodology

Detailed medical history was taken for all selected patients. They were examined in detail with careful general, systemic and neurologic examination according proforma. Examination was done in a separate examination room to interpret the site of the neurological lesion through clinical signs and to reach a provisional diagnosis, before subjecting to further biochemical and radiological investigations according to the study design.

Data analysis:

All data was collected and complied in Microsoft excel. All statistical analyses were performed by using IBM SPSS statistics Version 21.0 (SPSS Inc., Chicago, IL, USA) and openepi version 2.3.1. Descriptive statistics such as percentage (%), mean, range and standard deviation (SD) were used to describe the data. Chi square test was applied for qualitative data and student t test for quantitative type of data. A p value of <0.05 was regarded as statistically significant.

RESULTS

Mean age of patients in the study population was 43.92+14.36 years. Majority of them (32.5%) were in age group of 51 to 60 years. Of them 65% were males and 35% were females **(Table 1)**.

Majority 60% had onset of quadriparesis more than 5 days, 27.5% had 1 to 5 days and 12.5% had onset <24 hours **(Table 2)**.

Breathlessness was reported in 57.5 % of cases, fever in 52.5 percent, and petechiae/rash in 27.5 % **(Table 3)**.

Majority 25% had GBS, 12.5% had cervical disc prolapse, 2.5% had Acute exacerbation of CIDP, 7.5% had Critical Illness Polyneuropathy, 5% had snake bite, 5% had multiple sclerosis, 12.5% had Hypokalemic periodic paralysis, 2.5% had Hyperthyroid periodic paralysis, 7.5% had OPP poisoning, 5% had Sub arachnoid hemorrhage, 2.5% had Autoimmune encephalitis, 5% had Myasthenia Gravis, 2.5% had polymyositis, 2.5% had Cervical epidural abscess and 2.5% had Intramedullary spinal cord tumor **(Table 4)**.

Table 1: Age and gender distribution

Age in years	No. of cases	Percentage
12 to 20	2	5%
21 to 30	8	15%
31 to 40	6	15%
41 to 50	8	20%
51 to 60	9	32.5%
>60	7	12.5%
Mean±SD	43.92+14.36 years.	
Gender		
Male	26	65%
Female	14	35%
Total	40	100%

Table 2: Onset of quadriparesis

Onset of quadriparesis	No. of cases	Percentage
<24 hours	5	12.5%
1 to 5 days	11	27.5%
> 5 days	24	60%
Total	40	100%

Table 3: Clinical features in quadriparesis/quadriplegia

Symptoms	Cases	Percentage
Breathlessness	23	57.5%
Fever	21	52.5%
Petechiae/Rash	11	27.5%

Table 4: Etiological distribution of study population

Etiology	No of cases	Percentage
Guillian Barre Syndrome	10	25%
Cervical Disc Prolapse	5	12.5%
Acute exacerbation of CIDP	1	2.5%
Critical Illness Polyneuropathy	3	7.5%
Snake bite (neurotoxin)	2	5%
Multiple sclerosis	2	5%
Hypokalemic Periodic Paralysis	5	12.5%
Hyperthyroid Periodic Paralysis	1	2.5%
Organophosphorus Poisoning	3	7.5%
Sub Arachnoid Hemmorrhage	2	5%
Autoimmune Encephalitis	1	2.5%
Myasthenia Gravis	2	5%
Polymyositis	1	2.5%
Cervical Epidural Abscess	1	2.5%
Intramedullary Spinal Cord Tumor	1	2.5%
Total	40	100%

DISCUSSION

Mean age of patients in the study population was 43.92+14.36 years. Majority of them (32.5%) were in age group of 51 to 60 years. Of them 65% were males and 35% were females. Study by Chaurasia *et al*. showed that mean age was 43.3+11.1years. 53.3% were male and 46.67% were females in a similar study on Acute Quadriparesis.[6] Grassner L *et al*. showed that mean age was 61±17 years and 50% were males in a similar study.[7]

Majority 60% had onset of quadriparesis more than 5 days, 27.5% had 1 to 5 days and 12.5% had onset <24 hours. Grassner L *et al*., showed that 49.5% had rapidly progressing paresis.[7]

Breathlessness was reported in 57.5 % of cases, fever in 52.5 percent, and petechiae/rash in 27.5 %. According to Owolabi *et al*., radicular discomfort was present in 50% of patients, while paresthesia was prevalent in 38.4%. Around 70% had subjective sensory symptoms, with 22 (36.1%) having limb pain, 13 (21.3%) having limb paresthesia, 5 (8.2%) having backache, and 3 (5.9%) having both limb and back discomfort.[8]

Majority 25% had GBS, 12.5% had cervical disc prolapse, 2.5% had Acute exacerbation of CIDP, 7.5% had Critical Illness Polyneuropathy, 5% had snake bite, 5% had multiple sclerosis, 12.5% had Hypokalemic periodic paralysis, 2.5% had Hyperthyroid periodic paralysis, 7.5% had OPP poisoning, 5% had Sub arachnoid hemorrhage, 2.5% had Autoimmune encephalitis, 5% had Myasthenia Gravis, 2.5% had polymyositis, 2.5% had Cervical epidural abscess and 2.5% had Intramedullary spinal cord tumor. Historical subdivision based on preceding disease in Guillian Barre Syndrome cases, 36.3% were post Covid 19 pneumonia, 18.18% were post dengue/ viral fever, 18.18% were post acute gastro enteritis, 27.27% were post upper respiratory tract infection (non-covid). No statistical significance was seen between etiology and gender. (P=0.19).

According to Chaurasia *et al*.,61.7 % of the cases were caused by compression.[6] In descending order, Prabhakar *et al*., experienced subacute combined degeneration due to vitamin B12 deficiency and primary progressive multiple sclerosis.[9] According to Das *et al*., etiological diagnosis could be made in 71.95 % of cases, with no etiological factors discovered in the other individuals.[10] According to Alvarenga *et al*., 59 % of the cases were idiopathic.[11] Infections like

tuberculosis, according to Looti *et al*. are the major causes of compression.[12] Watson reported that nontraumatic paraplegia was responsible for 30% of new admissions in a hospital-based survey on nontraumatic paraparesis.[13] According to De Seze *et al*., 43 % were caused by multiple sclerosis, 16.5% by systemic illnesses, and 14 % by spinal cord infarcts.[14] Debette *et al*., discovered that multiple sclerosis was present in more than half of the individuals with an unknown origin.[15]According to Grassner L *et al*. infections (spinal epidural abscess, n=23; tetanus, n=2) and inflammatory/autoimmune causes (ADEM, n=3; transverse myelitis, n=8; multiple sclerosis, n=10) accounted for half of the cases.[6]

CONCLUSION

Present study mainly focused on etiology of acute onset non traumatic quadriparesis/quadriplegia. It was found that most common cause of non- traumatic quadriparesis was Guillian Barre Syndrome followed by Cervical disc prolapse, Critical Illness Polyneuropathy, Snake bite neurotoxin, Multiple Sclerosis, Acute exacerbation of CIDP and OP poisoning etc.

REFERENCES

[1] Granados A, Garcia L, Ortega C. Diagnostic approach to myelopathies; Rev Colombia radiology 2011;22(3):1-21.

[2] Fatunde OJ, Lagunju IA, Adeniyi OF, Orimadegun AE. Non-traumatic paraplegia in Nigerian children presenting at the University College Hospital, Ibadan. Afr J Med MedSci 2006;35:37-41.

[3] Choi KH, Lee KS, Chung SO, Park JM, Kim YJ, Kim HS, *et al*. Idiopath ic transverse myelitis: MR characteristics. Am J Neuroradiol 1996;17(11):51-60.

[4] Oshuntokun BO. Neurological disorders in Nigeria.Tropical Neurology. London: Oxford University Press; 1973. p. 161-90.

[5] Vaishnav B, Suthar N, Modi D. Acute Non-Traumatic Paraparesis: A Comprehensive Analysis of Aetiology and Clinical Profile in an Indian Subpopulation: NJIRM. 2014;5(5):17-21.

[6] Chaurasia RN, Verma A, Joshi D, Misra S. Etiological spectrum of non-traumatic myelopathies: experience from a tertiary care centre. The Journal of the

Association of Physicians of India. 2006;54:445-8.

[7] Grassner L, Marschallinger J, Dünser MW, *et al*. Nontraumatic spinal cord injury at the neurological intensive care unit: spectrum, causes of admission and predictors of mortality. Ther Adv Neurol Disord. 2016;9(2):85-94.

[8] Owolabi LF, Ibrahim A, Samaila AA. Profile and outcome of nontraumatic paraplegia in Kano, northwestern Nigeria. Annals of African medicine. 2011;10(2):86-90.

[9] Prabhakar S, Syal P, Singh P, Lal V, Khandelwal N, Das CP. Noncompressive myelopathy: clinical and radiological study. Neurology India. 1999;47(4):294-9.

[10] Das K, Saha SP, Das SK, Ganguly PK, Roy TN, Maity B. Profile of non- compressive myelopathy in eastern India: a 2-year study. Acta neurologica Scandinavica. 1999;99(2):100-5.

[11] Alvarenga MP, Thuler LC, Neto SP, Vasconcelos CC, Camargo SG, Alvarenga MP, *et al*. The clinical course of idiopathic acute transverse myelitis in patients from Rio de Janeiro. Journal of neurology. 2010;257(6):992-8.

[12] Lekoubou Looti AZ, Kengne AP, Djientcheu Vde P, Kuate CT, Njamnshi AK. Patterns of non-traumatic myelopathies in Yaounde (Cameroon): a hospital based study. Journal of neurology, neurosurgery, and psychiatry. 2010;81(7):768-70.

[13] Watson N. A survey of non-traumatic paraplegia. Paraplegia. 1981;19(2):107-10.

[14] de Seze J, Stojkovic T, Breteau G, Lucas C, Michon-Pasturel U, Gauvrit JY, *et al*. Acute myelopathies: Clinical, laboratory and outcome profiles in 79 cases. Brain : a journal of neurology. 2001;124(Pt 8):1509-21.

[15] Debette S, de Seze J, Pruvo JP, Zephir H, Pasquier F, Leys D, *et al*. Long-term outcome of acute and subacute myelopathies. Journal of neurology. 2009;256(6):980-8.