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PATTERN OF SPINAL CORD NON-COMPRESSION SYNDROMES; TYPIFIED BY NEUROMYELITIS OPTICA: THE EXPERIENCE IN SOKOTO

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ABSTRACT

Background: Myelopathy is used in describing neurologic deficit related to the lesions affecting the spinal cord. When the mechanism of injury is due to inflammatory changes, it is known as myelitis. Neuromyelitis optica (NMO) is one of the disabling inflammatory lesions of the central nervous system (CNS) and is presumed to be of putative autoimmune aetiology, that commonly affects both spinal cord and optic nerves. Clinically, NMO is subcategorized into cases of simultaneous optic neuritis (ON) and myelitis, cases of successive myelitis and later optic neuritis and limited forms such as single or recurrent events of longitudinally extensive myelitis (LETM) or recurrent ON. More rarely, patients may present with brain stem encephalitis. The aim of this study was to investigate the frequency of non-compressive spinal cord lesions in the North-western region of Nigeria. **Material and Method:** This was a retrospective study carried out in neurology unit of Usmanu Danfodiyo University Teaching Hospital Sokoto over the period of five year between January 2010-December 2014. Where patients at least 15 year of age were enrolled. The data were extracted from patient case folder. The data were analyzed for Frequency distribution, Age, Sex as well as cross tabulation of Age and Sex, Sex and diagnosis. **Result:** A total of 22 cases of Non-compressive myelopathies were clinically diagnosed within the study period, this accounted for 0.9% of all the neurological disorders. Out of this 81.2% (18/22) were females, and 18.2% (4/22) were males, with female to male ratio of 4.5:1. The mean age of patient was 58.3, with SD±18.5 and the age range of 17- 81 year. Neuromylitis optical and transverse myelitis accounted for 36.4% (8/22) each, followed by sub-acute combine degeneration of the cord 18.2% (4/22), while cervical cord infarction accounted for 9.1% (2/22). **Conclusion:** This study revealed that Neuromylitis optica and isolated transverse myelitis are the most common non-compressive myelopathies in our center. Therefore, clinicians practicing in developing countries like Nigeria must be aware of the many potential etiologies for spinal cord diseases, and should pursue an ordered, efficient, and cost-effective evaluations based on the patient's clinical history and examinations. This call for all hands to be on deck among policy makers in the region. Additionally, there is equally the need for modern neuro-diagnostic facilities such as Magnetic Renance Imaging (MRI), to be made available in our various hospitals in the region.

KEYWORDS: Spinal cord compresion syndrome, Neuromyelitis optica, Transverse Myelitis, Pattern.

INTRODUCTION

Myelopathy is used in describing neurologic deficit related to the lesions affecting the spinal cord.[1] When the mechanism of injury is due to inflammatory changes, it is known as myelitis. Neuromyelitis optica (NMO) is one of the disabling inflammatory lesions of the central nervous system (CNS) and is presumed to be of putative autoimmune aetiology, that commonly affects both spinal cord and optic nerves.[1] Neuromyelitis optica is commonly associated with positive serum antibodies to aquaporin-4.[2-7] Clinically, NMO is subcategorized into cases of simultaneous optic neuritis (ON) and myelitis, cases of successive myelitis and later optic neuritis and limited forms such as single or recurrent events of longitudinally extensive myelitis (LETM) or recurrent ON.[8,10] More rarely, patients may present with brain stem encephalitis.[11,12]

Spinal cord lesions in neuromyelitis optica characteristically extends up to three vertebral segments or more on magnetic resonance imaging and is often associated with seropositive AQ4.[13] Differentiating from other related non infective neuroimflatory lesions such as, Multile Sclerosis (MS) and metabolic disorders is based on both clinical symptoms and supporting paraclinical signs including magnetic resonance imaging, cerebrospinal fluid analysis, and immunological and biochemical parameters.[14] Best treatment often depends on a timely and accurate diagnosis.[15] Emergent treatment to halt inflammation with corticosteroids is required as well as early appropriate symptomatic therapies. Recent discovery of novel biomarkers has set apart specific inflammatory and autoimmune myelopathies, namely paraneoplastic myelitis and neuromyelitis optica spectrum diseases, the diagnosis of

which is crucial to establish therapeutic strategies.[16] Neuromyelitis optica is also characterized by transverse myelitis, which is inflammation of the spinal cord. Occasionally, the inflammation associated with transverse myelitis damages the spinal cord, causing a lesion that may extends the length of three or more vertebrae.

Generally, transverse myelitis (whether as an isolated disease or in combination with optic neuritis) causes weakness, numbness, and paralysis of the arms and legs depending on the site of lesion. Other effects of spinal cord damage can include disturbances in sensations, loss of bladder and bowel control, uncontrollable hiccupping, and nausea. In addition, muscle weakness may make breathing difficult and can cause life-threatening respiratory failure in people with the disease. Transverse myelitis is one of the major causes of paraplegia in young and middle aged persons in Africa.[17]

MATERIAL AND METHOD

This was a retrospective study involving both inpatients and outpatients seen and managed by neurology unit of Usmanu Danfodiyo University Teaching Hospital Sokoto over the period of five year between January 2010-Decembe 2014. The data were analyzed for Frequency distribution, Age, Sex and diagnosis.

RESULT

A total of 22 cases of Non-compressive myelopathies were clinically diagnosed within the study period, this accounted for 0.9% of all the neurological disorders. Out of this 81.2% (18/22) were females, and 18.2% (4/22) were males, with female to male ratio of 4.5:1. The mean age of patient was 58.3, with SD±18.5 and the age range of 17- 81 year. Neuromylitis optical and transverse myelitis accounted for 36.4% (8/22) each, followed by sub-acute combine degeneration of the cord 18.2% (4/22), while cervical infraction accounted for 9.1% (2/22).

Table 1: Clinical Profile of Non Compressive Myelopathy.

Diagnosis	Frequency	Percent
Nueromylitis optical	8	36.4
Transverse myelitis	8	36.4
Sub-acute combine degeneration of cord	4	18.2
Cervical infarction	2	9.1
Total	**22**	**100**

Table 2: Sex Distribution by Clinical Diagnosis.

Diagnosis	Female	Male	Total
Nueromylitis optical	8	0	8
Transverse myelitis	8	0	8
Sub-acute combine degeneration of cord	0	4	4
Cervical infarction	2	0	2
Total	**18**	**4**	**22**

Table 3: Age Distribution by Sex.

Age group	Female	Male	Total
<20	**2**	**0**	**2**
50-59	**8**	**2**	**10**
60-69	**0**	**2**	**2**
70-79	**6**	**0**	**6**
80-89	**2**	**0**	**2**
Total	**18**	**4**	**22**

Table 4: Cross Tabulation of Diagnosis and Age group of Patient.

Clinical diagnosis	<20	50-59	60-69	70-79	80-89	Total
Nueromylitis optical	**0**	**8**	**0**	**0**	**0**	**8**
Transverse mylelitis	**0**	**0**	**0**	**6**	**2**	**8**
Sub acute combine degeneration of cord	**0**	**2**	**2**	**0**	**0**	**4**
Cervical infarction	**2**	**0**	**0**	**0**	**0**	**2**
Total	**2**	**10**	**2**	**6**	**2**	**22**

Figure 1

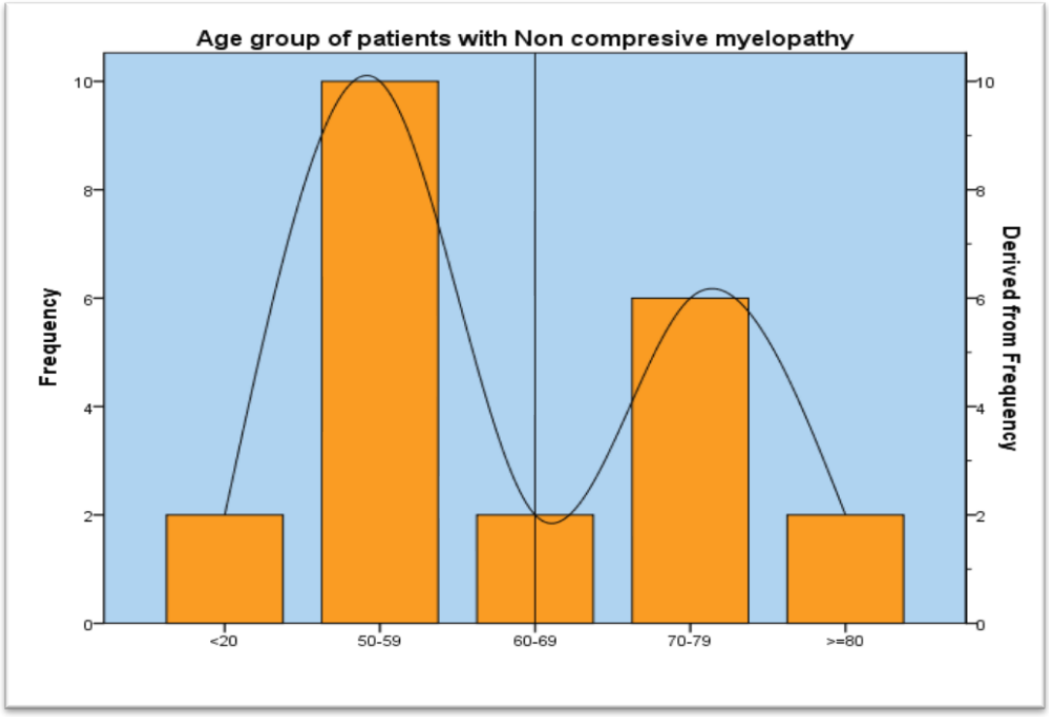

Figure 1: Age group of patients with Non-compressive myelopathies.

Figure 2

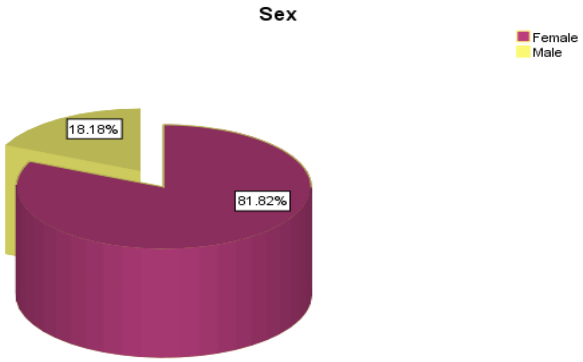

Figure 2: Percentage sex Distribution of Non-compressive myelopathies.

DISCUSSION

NMO is an inflammatory disorder that is characterised by one or more attacks of optic neuritis (ON) and myelitis, with specific diagnostic criteria developed to distinguish it from multiple sclerosis (MS).[18] The majority of patients with NMO have antibodies to aquaporin 4 (AQP4-Ab), a water channel protein expressed in foot processes of astrocytes.[19] The age of our patients was younger than those mostly reported. The age of onset of NMO is most common around the fourth decade of life, with the first attack occurring earlier or later than this age. The female predominance in NMO has been observed, especially in AQP4-Ab positive patients.[20] NMO is also more likely to occur in people of African decent.[21,23] It should be noted that, In this study we analysed therelative frequency of isolated transverse myelitis and optic neuritis among black African patients with both myelitis and neuromyelitis resours limited setting like Nigeria. We found a strong female preponderance in our patients with the female/male ratio, the female/male ratio was considerably higher than that observed in MS.[24]

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