WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES
SJIF Impact Factor 7.421
Volume 7, Issue 6, 149-156 Research Article ISSN 2278 – 4357

TREND OF SPINAL CORD COMPRESSION SYNDROMES: AN ANALYSIS OF 529 CASES IN A TERTIARY HOSPITAL, IN NORTH-WESTERN NIGERIA

Balarabe S. A.* and Halima M.

Department of Medicine, Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria.

Article Received on
15 April 2018,
Revised on 06 May 2018,
Accepted on 27 May 2018
DOI: 10.20959/wjpps20186-11824

***Corresponding Author**
Dr. Balarabe S. A.
Department of Medicine,
Usmanu Danfodiyo
University Teaching
Hospital Sokoto, Nigeria.

ABSTRACT

Background: Neurological disorders contributed to ninety two(92) million Disability-Adjusted Life Years (DALYs) in 2005 and is projected to increase to 103 million in 2030. In view of this considerable morbidity associated with neurological diseases, there is need to pay critical attention to the trends of and frequency of chronic neurological diseases such as spinal cord syndromes, so as to mitigate their unfavourable outcomes. The socio-demographic and epidemiological transition in developing countries has changed the pattern of morbidity and mortality among patients with neurological diseases. The change in paradigm has brought non-communicable diseases to the forefront of the health care delivery system. Spinal cord is the major conduit through which motor and sensory information travels from the periphery(body) to the centre (brain) and visa-vasa.Therefore, lesions affecting the spinal cord are associated with meriad of motor and sensory abnormalities, through compressive (eg.Tuberclosis of the spina) or non-compressive (eg. tranverse myelopathy) mechanisms**.** This study tends to shed some light on compressive myelopathies in the North-Western region of Nigeria. **Material and Method:** The Neurology unit inpatient and outpatient database from 2010 to 2014 was used to identify patients with a diagnosis of spinal cord compression syndrome. Demographic and other relevant data were obtained for all clinic visits and admissions, that included age, sex and comorbid conditions. The data were analyzed for Frequency distribution, Age, Sex as well as cross tabulation of Age and Sex, Sex and diagnosis. **Result:** There were a total of 529 cases of spinal cord compression syndromes seen and managed by the unit during the study period, which constituted 20.9% of all the neurological disorder in the same period. Males were 277(52.4%), Females were 252(47.6%). With the male to female ratio 1.1:1. The mean

age was 37.7 with SD± 17.8, and age range of 17-88 year. The common cord compression syndromes were: Tuberculosis (TB) of the spine which accounted for 186(35.2%), followed by Cervical Spondylosis 175(33.1%), Lumber Spondylosis 124(23.4%), Disc prolapse 17(3.2%), Combined Cervical and Lumbar Spondylosis and Cervical Injury accounted for 8(1.5%) each, Cauda-equina syndrome 4(0.8%), Spondylolisthesis 3(0.6%), Cervical ankylosing spondylitis 2(0.4%), metastatic prostatic carcinoma and thoraco-lumbar spondylosis accounted for 1(0.2%) each. **Conclusion:** This study revealed that tuberculosis of the spine is the most predominant cord-compression syndrome. Therefore, clinicians practicing in developing countries like Nigeria must be aware of the many potential etiologies for spinal cord diseases , and should pursue an order, 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 Syndrome, Retrospective Study, Cord Compression Syndrome, North-Western Nigeria, Relative Frequency.

INTRODUCTION

Neurological disorders contributed to ninety two (92) millionDisability-Adjusted Life Years (DALYs) in 2005 and is projected to increase to 103 million in 2030.[1] In view of this considerable morbidity associated with neurological diseases, there is need to pay critical attention to the trends of and frequency of chronic neurological diseases such as spinal cord syndrome, so as to mitigate their unfavourable outcomes.[2] The socio-demographic and epidemiological transition in developing countries has changed the pattern of morbidity and mortality among patients with neurological diseases. The change in paradigm has brought non-communicable diseases to the forefront of the health care delivery system.[3] Spinal cord is the major conduit through which motor and sensory information travels from the periphery (body) to the centre (brain) and vis-vasa.[4,5] Therefore, lesions affecting the spinal cord are associated with meriad of motor and sensory abnormalities, through compressive (eg.Tuberclosis of the spinal) or non-compressive (eg. tranverse myelopathy) mechanisms**.** By convention spinal cord disorders are classified as ‘‘syndromes’’ due to the typical signs and symptoms produced because of the location of the lesion and specific tract involvement.[2]

Spinal tuberculosis (TB) is one of the oldest human diseases; it has been found in Egyptian mummies dating back to about 5000 years; the first case of spinal TB was described by Percival Pott in 1779.[6] In the developing countries, spinal TB is one of the primary causes of spinal deformity and paralysis. On the other hand cervical spondylosis is a degenerative disease of the cervical spine, intervertebral discs, ligaments and cartilaginous materials, and it is commonly seen in people above age 40 years. It is believed to be part of the normal aging process of the vertebral column. Radiological investigation of asymptomatic individuals showed spondylotic changes of greater than 50% by age 50 years and up to 90% by age of 65 years.[7]

MATERIAL AND METHOD

This was a retrospective study carried out in neurology out patient's clinics 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 validated using Microsoft excel and exported it into SPSS for statistical analysis. The data were analyzed for Frequency distribution, Age, Sex as well as cross tabulation of Age and Sex, Sex and diagnosis.

RESULT

There were a total of 529 cases of spinal cord compression syndromes seen and managed by the unit during the study period, which constituted 20.9% of all the neurological disorder in the same period. Males were 277(52.4%), Females were 252(47.6%). With the male to female ratio 1.1:1. The mean age was 37.7 with SD± 17.8, and age range of 17-88 year. The common cord compression syndromes were: Tuberculosis (TB) of the spine which accounted for 186(35.2%), followed by Cervical Spondylosis 175(33.1%), Lumber Spondylosis 124(23.4%), Disc prolapse 17(3.2%), Combined Cervical and Lumbar Spondylosis and Cervical Injury accounted for 8(1.5%) each, Cauda-equina syndrome 4(0.8%), Spondylolisthesis 3(0.6%), Cervical ankylosing spondylitis 2(0.4%), metastatic prostatic carcinoma and thoraco-lumbar spondylosis accounted for 1(0.2%) each.

Table. 1: Distribution of Cord Compressive Syndrome.

Diagnosis	Frequency	Percent
Spondylosis	308	58.2
TB spine	186	35.2
Disc prolapse	17	3.2
Cervical injury	8	1.5
Cauda-equirna syndrome	4	0.8
Spondylolisthesis	3	0.6
Cervical ankylosing spondylitis	2	0.4
Metastatic prostate carcinoma	1	0.2
Total	529	100

Table. 2: Distribution of Spondylosis by location of the lesion.

Diagnosis	Frequency	Percent
Cervical spondylosis	176	57.1
Lumbar spondylosis	124	40.3
Cervical + Lumbar spondylosis	8	2.6
Total	308	100

Table. 3: Age Distribution of Patient with Cord Compression Syndrome.

Age Group	Frequency	Percent
<20	83	15.7
20-39	121	22.9
40-49	142	26.8
50-69	165	31.2
70-89	18	3.4
Total	529	100

Table. 4: Sex Distribution by Age.

Age Group	Female	Male	Total
<20	83	0	83
20-29	165	0	165
30-39	-	-	-
40-49	4	138	142
50-59	0	45	45
60-69	0	76	76
70-79	0	13	13
80-89	0	5	5
Total	252	277	529

Table. 5: Cross-Tabulation of Sex Cord Compressive Profile.

Diagnosis	Female	Male	Total
TB spine	56	130	186
Cervical spondylosis	11	164	175
Lumber spondylosis	8	125	133
Lumber disc prolapse	10	7	17
Cervical injury	8	0	8
Cauda-equira syndromes	4	0	4
Spinal stenosis	0	3	3
Cervical ankylosing spondylitis	0	2	2
Prostate CA with metastasis to spine	0	1	1
Total	97	432	529

Table. 6: Cross-Tabulation of Age Cord Compressive Profile.

Diagnosis	<20	20-29	30-39	40-49	50-59	60-69	70-79	80-89	Total
TB spine	0	56	-	10	42	62	13	3	186
Cervical spondylosis	65	99	-	0	3	8	0	0	175
Lumber spondylosis	0	0	-	124	0	0	0	0	124
Disc prolapse	0	10	-	3	0	3	0	1	17
Cervical + Lumbar spondylosis	8	0	-	0	0	0	0	0	8
Cervical injury	8	0	-	0	0	0	0	0	8
Cauda-equina syndromes	0	0	-	4	0	0	0	0	4
Spodylolisthesis	0	0	-	0	0	3	0	0	3
Cervical ankylosing spondylitis	2	0	-	0	0	0	0	0	2
Metastastic Prostate cancer	0	0	-	1	0	0	0	0	1
Thoraco-lumbar spondylosis	0	0	-	0	0	0	0	1	1
Total	83	165	-	142	45	76	13	5	529

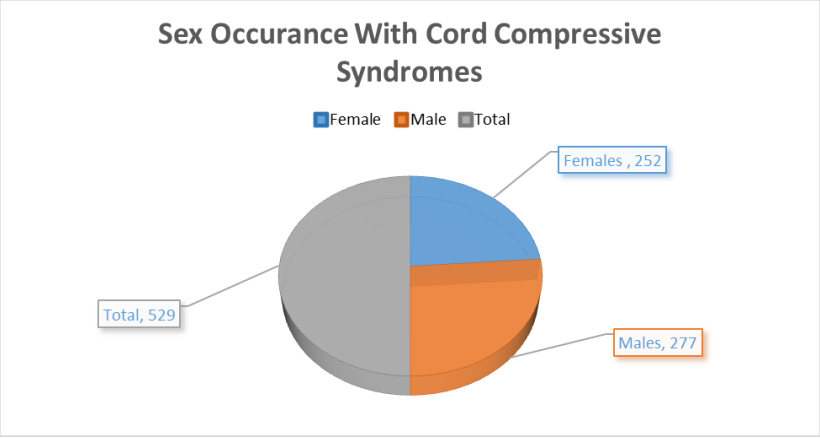

Figure. 1.

DISCUSSION

Compressive myelopathies: Tuberculosis of the spine(Pott's disease) was the commonest cord compression syndrome in this study, it accounted for 35.2% (186/529). Males were 277(52.4%), Females were 252(47.6%). With male to female ratio 1.1:1. The male

preponderance in this study further substantiated differential sex hospital attendance pattern in the region of the study, as women often require permission of their husbands to access healthcare in a hospital environment, as alluded to in some other previous studies.[14-18] Pott's disease is one of the major causes of compressive myelopathies in developing countries; the disease is chronic, debilitating and associated with long term sequelae, such as pressure sore, deep venous thrombosis and risk of pulmonary embolism.[19] The second commonest cause of compressive myelopathies in our study is degenerative articular diseases in form of spondylosis, these accounted for 58.2% of all the neurological conditions managed within the period which included: Cervical Spondylosis 175(33.1%), Lumber Spondylosis 124(23.4%), Cervical and lumbar Spondylosis and thoraco-lumbar spondylosis accounted for 1(0.2%) Degenerative change in the cervical spine is strongly associated with advancing age.[19] The mean age of affected people in this study was 52 years, which correlated well with earlier studies by Pallis *et al* who found that cervical spondylosis was a disease of the elderly affecting mostly those over 50 years.[20] In a related development Ahmed *et al*. found that the maximum number of cases (60%) of cervical spondylosis among patients in Bangladesh, was in the age group above 50 years.[21]

Recommendation

The understanding of neurologic recovery should help predict ultimate functional capability and needs, and helps evaluate the effectiveness of pharmacologic and therapeutic interventions[22]. Therefore to overcome the increase of these disease. Effort should be made to prevent and promote health status of patient suffering from these diseases in order to reduce the burden and mortality by supplying of adequate diagnostic facilities, good record keeping system, sufficient of health training personnel, as well as public enlightenment.

CONCLUSION

This study revealed that Tuberculosis of the Spine is the most predominant cord-compression syndrome. 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. 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.

REFERENCES

1. Howlett DWP. Neurologial Disorders Chapter 10 Paraplegia Non Traumatic. Kilimanjaro Christian Medical Centre, Moshi, Kilimanjaro, Tanzania, 2012.
2. Jacod A, Weinshenker BG. An approach to the diagnosis of acute tranverse myelitis. Seminars in neurology, 2008; 28(1): 105-20.
3. Scott TF, Kassb SL, Pittock SJ. Neuromyelitis optica igG status in acute partial transverse myelitis. Acives of neurology, 2006; 63(10): 1398-400.
4. Brinar w, Habek M, Zadro I, Barun B, Vranjes D. Current concept in the diagnosis of transverse myelopathies. Clinical neurology and neurosurger, 2008; 110(9): 919-27.
5. Proposed diagnostic criteria and nosology of acute myelitis. Neurology, 2002; 59(4): 498-505.
6. Sa MJ. Acute myelitis: a practical reappraisal. Autoimmune revew, 2009; 9(2): 128-31.
7. Fred Stephen Sarfo, John Akassi, Elizabeth Badu, AhamOkorozo, Bruce Obiagele, Albert Akpalu. Profile of neurological disorders in an adult neurology clinic in Kumasi Ghana. eNeurologicalSci., 2016; 3: 69-74.
8. WHO. Chaptre_2 global burden of neurological disorders estimates and projection, 2007.
9. WHO. Chapter_1public health principles neurological and dosorders, 2007.
10. M. Gourie-Devia G., Gururajb P., Satishchandraa D.K., Prevalence of Neurological Disorders in Bangalore, India: A Community-Based Study with a Comparison between Urban and Rural Areas. Neuroepidemiology, 2004; 23: 261-8.
11. Kirshblum sc, Burns SP, Biering-Sorensen F, Donovan W, Graves DE, Jha A, et al. International standards for neurological classification of spinal cord injury (Revised 2011). The Journal of Spinal Cord Medicine, 2011; 34(6): 535-46.
12. H. Lawal, E.E. Anyebe, Obiako OR. Domestic and Activities of Daily Living Challeges on Parents of Children with Neurologic Deficit in Zaria, Norththern Nigeria. A. Asian Journal of Medical Sciences, 20014; 6(4): 40-4.
13. Ekinci S, Tatar O, Akpancar S, Bilgic S, Ersen O. Spinal Tuberculosis. Journal of Experimental Neuroscience, 2015; 9: 89-90.
14. Sholagberu BA, Ayorinde R. Tuberclosis of the spine in Ilorin, Nigeria. East Afr Med J., 2001; 78: 197-9.
15. Ikem IC, Bamgboye EA, Olasinde AA. A 15 year review at OAUTHC Ile-Ife. Niger Postgrad Med J., 2001; 22-5.
16. Sayi EN, Mlay S. Tuberculosis of the spine in children at Muhimbili Medical Centre Dar Salam. East Afr Med J., 1995; 72: 46-8.

17. Rezai AR, Lee M, Cooper PR, Errico TJ, kOSLOW M. Moderm management of Spinal tuberculosis Neurosurgery. Neurosurgery, 1995; 36: 87-97.
18. Ogunseyinde AO, Obijimi MO, Ige OM, Alonge T, Fatunde OJ. Computed tomographic evaluation of TB spine in Ibadan. West Afr J Med., 2004; 23: 228-31.
19. Mouw MD, Hitchon OW. Pathogenesis and natural history of degenerative disc and spinal disease. In: Tindall GT, Cooper PR, Barrow DL, editors. The practice of Neurosurgery. Vol.3.Baltiomre: Williams & Wilkins, 1996; 2357-65.
20. Pallis C, Jones AM, Spillane JD. Cervical spondylosis;incidence and implications. Brain, 1954; 77: 274-289.
21. Ahmed Z, Khan M, Islam N. Cervical spondylosis. Asian Med J., 1992; 25: 271-7.
22. Kirshblum SC, O'Connor KC. Predicting neurologic recovery in traumatic cervical spinal cord injury. Archives of Physical Medicine and Rhabilitation, 79(11): 1456-66.