

Lumbar Spondylosis: Occurrence by Gender and Age Strata at the Central Hospital, Ughelli in Nigeria

Anibor Ese,¹ Ahama Efe,¹ Owarieta Edith Oghenekohwo¹

¹Department of Human Anatomy and Cell Biology, Faculty of Basic Medical Sciences, Delta State University, Abraka, Nigeria.

ABSTRACT

Introduction

Lumbar spondylosis (LS) is an abnormal growth of vertebral bones which is prevalent among individual and causes aging and trauma. The aim of the study is to determine the prevalence of LS at the Central Hospital, Ughelli.

Methods

A purposive sampling technique was utilized and data was subjected to SPSS version 25. The study adopted a retrospective and descriptive study design, which involved 261 females and 113 males. Totality of 374 lateral radiographs of patients aged 18years and above were utilized.

Results

LS was widespread among the subjects (n=298, 79.7%). It is found to be more prevalent among age group of 65-74 years, there was no significant association between age and occurrence of LS ($\chi^2 = 5.329$; $df = 1$; $n = 374$; $P = 0.255$). In females LS was more prevalent among subjects in age group of 45-65 years while subjects >74 years had the least prevalence. There was no significant age variation in the prevalence of LS among females ($\chi^2 = 4.553$; $df = 4$; $n = 261$; $P = 0.336$). In males LS was more prevalent among subjects in age group of 65-74 years while subjects in age group 35-44 years had the least prevalence. There was a significant age variation in the prevalence of LS among males ($\chi^2 = 13.559$; $df = 4$; $n = 113$; $P = 0.009$).

Conclusions

This study showed high occurrence of LS. Its pervasiveness is peaked at age 65-74 years and 45-54 years in males and females respectively.

Keywords: lumbar; spondylosis; prevalence; gender and age.

Correspondence: Mr. Efe Ahama, Department of Human Anatomy and Cell Biology, Faculty of Basic Medical Sciences, Delta State University, Abraka, Nigeria. Email: efeahama@gmail.com. Phone: +234-7068538442.

INTRODUCTION

Spondylosis is a degenerative disease that occurs at the intervertebral disk, vertebral bodies and is associated with stiffness of joints and axial spine. It is not really diagnose clinically but a term generally used for most spinal defects.¹ It is also a major cause of disk degenerative disease, spinal osteoarthritis, degenerative spondylosis, intervertebral disk degeneration, arthrosis, and hypertrophic arthritis.² Spondylosis generally is initiated from the problem associated with intervertebral disc leading to disc lesion which causes several pathological changes to the vertebral bodies.³

Lumbar spondylosis (LS) is an abnormal growth of vertebral bones (osteophyte) especially at the anterior, lateral and less common at the posterior aspects of the superior and inferior margins of vertebral bodies.⁴ It is characterized by disc degeneration and osteophytosis, and is prevalent among middle-aged and causes aging and trauma in elderly individuals.⁵ Most osteophytes are anterior or lateral in projection, posterior vertebral osteophytes are less common and only rarely impinge upon the spinal cord or nerve roots and Radiologically LS is characterized by the presence of osteophytes, disk space narrowing and end-plate sclerosis.² Previous studies have shown that LS is associated with aging, obesity and bone mass.⁶⁻⁸ Intervertebral disk degeneration announce osteophytosis by which flexibility between the vertebral bodies are increased, this in turn create a mechanical stress on the bones which are just beneath the cartilage of the vertebral body leading to sclerotic changes. This sclerotic change is otherwise called end-plate sclerosis, whereas the hyperplastic change at the edge of the vertebral body is called osteophytosis.⁹

Study has shown that patients with LS usually have pain in their spine. Patients suffering lumbar spondylosis also have neurologic imbalance due to crippling legs and feet, which involves lower back pain, leg pain, and numbness when standing and walking. These symptoms are

obvious in sitting and supine position.¹⁰ It is well established that the morphometrical data on LS varies within different sex, race, ethnic and regional groups.¹¹ Researchers disclosed that about 27% - 37% of an asymptomatic population has LS and this can begin in persons as young as 20 years, and the prevalence have high chances of increasing with respect to age.⁴ A study showed that at 45-64 years, LS occurs in about 20% of men and 22% of females, whereas at 55 - 64 years, the incidence increases to about 30% of men and 28% of females. Although variable, the sex ratio reports are essentially equal.¹²

Literature investigation disclosed deficiency of publications on LS among the patients seen at the Central Hospital at Ughelli in Nigeria. This inquisition has information for use in orthopedic surgery, physiotherapy and medicine in general. The purpose of this study is to elucidate the prevalence of lumbar spondylosis at the Central Hospital, Ughelli in Nigeria.

METHODS

This study adopted the descriptive cross sectional study design. A purposive sampling technique was used to sample 374 patient lateral radiographs of patients aged 18 years and above, of which 261 were females and 113 were males. The study subjects visited the radiology unit in a Central Hospital, from 2016 to 2019. Data were obtained and recorded from the radiology and medical unit considering the presence of LS on radiograph, age, sex and year of visitation of the patient to the hospital.

Inclusion Criteria were considered which were; registered subjects with good documentation, subjects with clear and good x-ray films and subjects within the age limit of 18 years and above exclusion criteria were also considered, which were; poorly documented cases and unregistered subjects, subjects with blurred x-ray films, subjects outside the age limit of 18 years and above and subjects with skeletal abnormalities.

Ethical approval with reference number DELSU/

CHS/ANA/68/79 was acquired for this research. Permission was also gotten from the radiology department of the Hospital, before the onset of data collection. SPSS (Statistical Package for the Social Sciences), precisely version 25 was used to analyze data Chi-square test at 95% confidence interval was used for analyzing inferential statistics in used for this study and p value lesser than 0.05 was considered to be statistically significant.

RESULTS

Figure 1, 2 and 3 shows the gender, age and prevalence of lumbar spondylosis of the subjects.

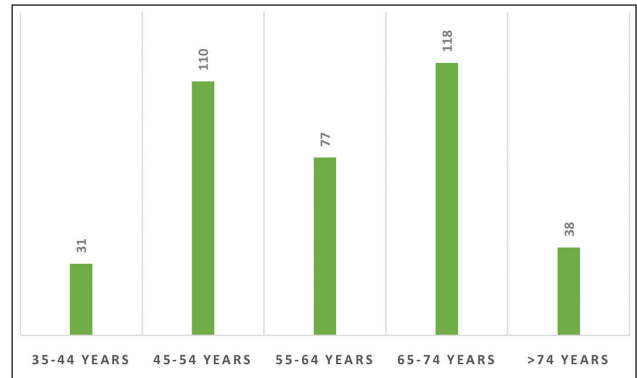


Figure 2. Chart showing prevalence of most subjects which were aged between 65-74 years

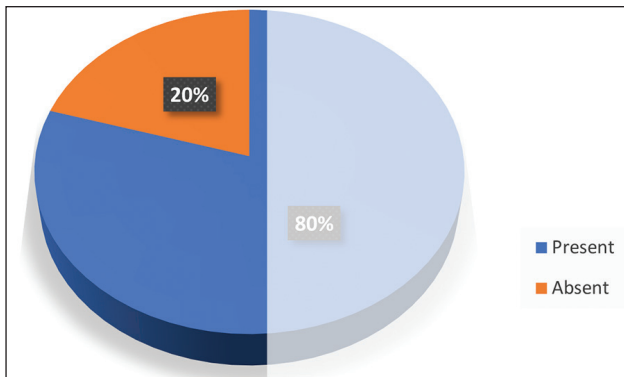


Figure 1. Chart representing the subjects which were female and male respectively (n =261, 70%) and (n =113, 30.2%).

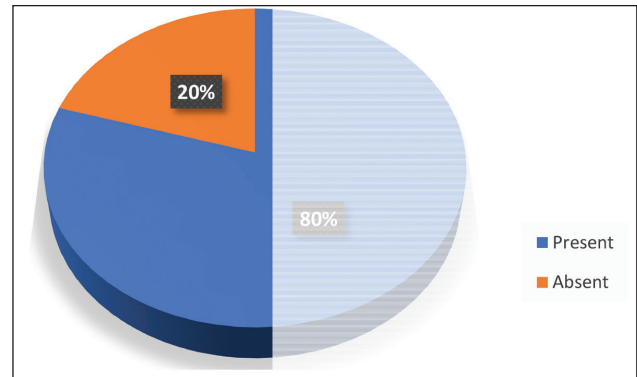


Figure 3. Chart depicting lumbar spondylosis which is prevalent among the subjects (n = 298, 79.7%).

			Present	Absent	Total	P-value
Gender	Male	Count	93	20	113	<0.26
		%	82.3	17.7	30.2	
	Female	Count	205	56	261	
		%	78.5	21.5	69.8	
Age	35-44 years	Count	24	7	31	<0.26
		%	8.1	9.2	8.3	
	45-54 years	Count	90	20	110	
		%	30.2	26.3	29.4	
	55-64 years	Count	66	11	77	
		%	22.1	14.5	20.6	
	65-74 years	Count	92	26	118	
		%	30.9	34.2	31.6	
> 74 years	Count	26	12	38		
	%	8.7	15.8	10.2		

Table 1 depicts a record of gender and age with regards to LS, with the incidence of LS higher in females as compared to the male counterpart, this variation was not statistically significant ($\chi^2 = 0.687$; $df = 1$; $n = 374$; $P = 0.407$). LS was more predominant in age group 65-74 years, and rare in the 35-44 years age bracket ($\chi^2 = 5.329$; $df = 1$; $n = 374$; $P = 0.255$).

The index study revealed that LS is more pervasive in females as compared to the males in terms of gender disposition, which may be attributed to activities like part time jobs, carrying out some household jobs and taking care of children Also noteworthy is the fact that the index study showed that there was no significant gender variation in the

Table 2. Comparison of lumbar spondylosis Prevalence with Gender and Age Groups.

	Prevalence		Age Group					P-value
			35-44 years	45-54 years	55-64 years	65-74 years	> 74 years	
Female	Absent	Count	5	19	11	11	10	
		%	8.9	17.9	19.6	19.6	17.9	
	Present	Count	19	68	43	57	18	<0.26
		%	9.3	33.2	21.0	27.8	8.8	
Male	Absent	Count	2	1	0	15	2	
		%	10.0	5.0	0.0	75.0	10.0	<0.26
	Present	Count	5	22	23	35	8	
		%	5.4	23.7	24.7	37.6	8.6	

Table 2 revealed that prevalence of LS in female is more in age groups of 45-54 years and least in age group >74 years, there was no significant age variation in the prevalence of LS among females ($\chi^2 = 4.553$; $df = 4$; $n = 261$; $P = 0.336$) prevalence of LS in males is more in age groups of 65-74 years and least in age group of 35-44 years, and there was a significant age variation in the prevalence of LS among male ($\chi^2 = 13.559$; $df = 4$; $n = 113$; $P = 0.009$).

DISCUSSIONS

Several studies have proven that LS is a common asymptomatic condition in a population with no significance of diagnosis.^{11,14,15} Research has shown that 27-37% of a certain population is asymptomatic of the dominance of LS considering age as a factor.¹⁶ This study was carried on 374 subjects, precisely 261 females and 113 males, with several age ranges.

occurrence of LS ($P > 0.05$). This research was in disagreement with a study carried out by Lauri and Kalichman as they observed that LS was more dominance in males than in their female counterpart.¹⁷⁻¹⁸ Okpala observed from his study that LS is more pervasive in male than in the female counterpart.¹⁹ These differences could be attributed to differences in subjects' lifestyle, age and methodology.

According to the results of this index study it was observed that LS is rampant in age group 65-74 years and less common in age group 35-44 years, as it may be as a result of aging which is partially in agreement with a study carried out by Muraki where LS prevalence peaked at > 60 years and was associated with low back pain and aging as a factor in the population.¹³ Okpala, reported an increased prevalence of LS that peaked at age 55-64 years and gradually declined as the age increases. He also stated that the reason for this

is unclear and may be related to geographical area and he suggested further studies in other geographical area.¹⁹

The index study also depicts the comparison of LS prevalence in both gender and considering age groups in the population. It was observed that LS prevalence in female is high among subjects of age group 45-54 years, while less dominance occurred among subjects in age group >74 years. It was also noticed that there is no significant distinction in age variation occurred in the prevalence of LS among female ($P>0.05$). The prevalence of LS in male is notice to be high in age group 65-74 years and less prevalence in age group 35-44 years with a significance in the age

variation in the prevalence of LS among male ($P<0.05$). This may be associated with some underlying factors like aging, weight, height and BMI. This finding is partially in agreement with Samal's study were the occurrence of LS were as a result of same underlying factors.²⁰

CONCLUSIONS

This study showed a high occurrence of lumbar spondylosis. The pervasiveness of lumbar spondylosis is peaked at age 65-74 years and 45-54 years in males and females respectively

CONFLICT OF INTEREST

Nil

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