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Research Article

Prevalence Of Lumbar Spinal Stenosis with Intermittent Neurogenic Claudication in Elderly Population.

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ABSTRACT

Background: Based on variations in diameter of spinal canal, earlier research assessed how an epidural steroid injection affected spinal stenosis. (13) This study provides data on 99 individuals older than 65 with transient neurogenic claudication.

This study will assist in determining the prevalence of intermittent neurogenic claudication in the individuals having stenosis of lumbar spine for a variety of causes.

Objectives: The aim of the study is to ascertain how common stenosis of lumbar spine and intermittent neurogenic claudication were in the senior population.

Methods: The cross-sectional survey that was conducted in Karad City served as the basis for this article. The intention of survey is to decide how common intermittent neurogenic claudication in elder individuals having stenosis of lumbar spine. Prior to conducting the survey, the ethical committee's approval was obtained. Patients were chosen based on inclusion and exclusion standards. With their permission, 99 elder individuals with stenosis of lumbar spine were participated in above study, and result was obtained by the statistician.

Result: In above study, we observed that 13% among those with lumbar canal stenosis are not experiencing neurogenic claudication symptoms, whereas 87% of individuals with stenosis of lumbar spine who are older than 65 show intermittent neurogenic claudication.

Conclusion: This study indicates that the overall prevalence of transient neurogenic claudication in individuals over 65 with stenosis of lumbar spine is 87%. Overactivity, sedentary lifestyle and aging can cause these problems.

Keywords: Prevalence, Intermittent neurogenic claudication, Lumbar spinal stenosis, Elderly.

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INTRODUCTION

Stenosis is narrowing of passage or opening (1) In allusion to the Roman Emperor Claudius, who is believed to have walked with a limp, the word "claudication" is derived from the Latin claudi care, which means "to limp." (9). There are four types of stenosis based on their location and cause. There're two varieties based on location: central and lateral. The former narrows the spinal canal; the latter narrows the nerve root canal or foramen. Again, there are two types of stenosis depending on the cause. Acquired stenosis occurs when the spinal canal narrows after birth for a variety of causes, such as degenerative diseases like spondylitis, spondylosis, spondylolisthesis, trauma or spinal canal injury, etc. The other type is congenital or developmental, where the spinal canal is narrow from congenitally and uniformly along the length of the entire lumbar canal level. (17) There're various reasons for degenerative stenosis of the lumbar spine, including disc herniation, spondylolisthesis, compression fracture, and ligamentum flavum and facet hypertrophy. Usually, a combination of multiple factors causes the stenosis. Computed tomography, computed tomography-myelogram, and magnetic resonance imaging are examples of imaging modalities routinely used to evaluate various medical condition (3)

The spinal canal's size and structural structure are determined by not widely understood developmental and embryologic factors. Neuronal structures entering or exiting the spinal canal are invaded by osteophytic ridge development and degenerative hypertrophy of the articulating facets and supporting ligaments. (5).

Degenerative variations in the lumbar spinal complex are the primary cause of stenosis of lumbar spine (LSS), a prevalent disorder in the elderly. (13). Hypertrophy of the osseous and soft tissue structures surrounding the lumbar spinal canal can trap the cauda equina roots, causing severe discomfort in the lower extremities and back, difficulty walking, weakness and sensory deficits in the legs, and, in severe cases, difficulties with the bowels or bladder. (8)

Previous researches concerning stenosis of lumbar spine encompassed different diagnostic and treatment strategies in addition to the structural and functional involvement of condition. Stenosis of lumbar spine can impair blood flow to the spinal nerves giving rise to neurogenic claudication and limited walking ability. One of the primary hallmarks of stenosis of lumbar spine is neurogenic claudication. Unilateral or bilateral hip, quad, and calves' pain are additional signs of stenosis of lumbar spine in addition to neurogenic claudication. Walking and Long period of standing have been shown to contribute to lower back pain and weakness. (2)

The patient's symptoms worsen to the point where they must immediately rest or sit for a short while. When diagnosing patients with severe clinical and morphological lumbar spinal stenosis, nerve root sedimentation is a significant approach. (15) Stenosis commonly affects the lumbar spine, even though it is most flexible region of the spine and is utilized more frequently throughout life. Elderly spine MRI frequently reveals spinal canal narrowing or foramina. When determining the degenerative or developmental subtypes of stenosis of lumbar spine, age is frequently considered a risk factor. (14) Spinal stenosis, either of the lumbar spine, cervical spine, or both, is diagnosed only when neurogenic claudication and/or cervical myelopathy symptoms are present (the thoracic spine is rarely involved). (4) Both sexes' canal measurements steadily declined from L1 to L5 spinal levels; however, the females' relative canal width was larger than the boys' in the same age group. Canal to vertebral body ratio (C/B) values typically fall between 1:2.0 and 1:5.0. While lumbar spinal canal stenosis would be conclusively identified by any ratio greater than 1:5.0, a ratio of 1:2.0 indicates a bigger canal. (7).

Aim of study is to estimate the incidence of lumbar spinal stenosis with neurogenic claudication in older individuals, considering this group of individuals is more susceptible to be diagnosed with many degenerative spinal disorders in later life stages. The lumbar canal's sagittal diameter is typically between 15 and 25 m less than this are considered suggestively abnormal; stenosis is confirmed if the diameter is less than 12 mm. In contrast, a lateral recess height of less than 3 mm is suggestive, and a height of less than 2 mm is indicative of stenosis. (16)

Previous studies show the impact of an epidural steroid injection on stenosis of spine based on changes in the diameter of spinal canal. (13) A total 99 people over 65 with intermittent neurogenic claudication are included in study. Multiple research studies have proven the reliability as well as efficiency of micro endoscopic lumbar decompression surgery for LSS, degenerative spondylolisthesis, and foraminal stenosis since the field's started about 20 years ago. New surgical methods and tools are being developed, and technology for reducing invasiveness and enhancing safety has kept developing. (12).

This study will help in finding the prevalence of intermittent neurogenic claudication in elderly population having stenosis of lumbar spine due to various reasons. It will help to improve quality of life of elderly population and make their activities of daily living easier.

Individuals above age of 65 are classified as geriatric. Ages 65 to 74 represent young age; 75 to 84 represent older age; 85 years and above represent oldest age; the UN defines 60+; developed countries 65+(10).

Methods

A cross-sectional study was performed in Satara district over the previous six months to estimate the prevalence of stenosis of lumbar spine with intermittent neurogenic claudication in elderly people.99 people consented to take part in the study; 51 of them were men and 44 were women. They talked about having pain and tingling in their legs and back buttocks, having trouble balancing and walking due to these symptoms. First, the ethical committee approved its permission. Participants were selected based on the inclusion and exclusion criteria. Respondents were given an explanation of the study and questionnaire before providing informed consent. The questionnaire was distributed to all participants both online and offline, and results were collected. This questionnaire consists of two scales. The first scale is the symptom severity scale, which covers the first seven questions of the questionnaire about the symptoms of stenosis of lumbar spine.

First six questions have 5 options which one of them the participants should select and those are as follows l:

None, mild, moderate, severe and very severe. And for the 7th question has 3 options as which grades as 1,3 and 5.

The outcome will be determined by adding the participant-marked scores. It states that the score on the symptom severity scale is between 0 and 35, with 0 to 7 indicating no symptoms, 7 to 14 indicating mild symptoms, 15 to 21 indicating moderate symptoms, 22 to 28 indicating severe symptoms, and 29 to 35 indicating very severe symptoms.

Another scale is functional disability scale which is about the deterioration of functions in the stenosis of lumbar spine.

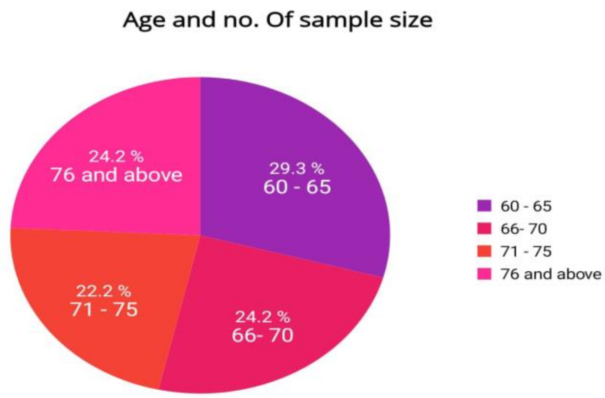
Every question has 4 options and it grades as 1,2,3,4 respectively.

In the functional disability scale, the outcome will be determined by adding the participant-marked scores. Scoring of this scale will be analysed by walking of patient to doorstep and to outdoor. It states that the score of this scale is between 0 and 20, with 0 to 5 indicates yes that is the patient is able to walk comfortably, 6 to 10 indicates that patient is able to walk but sometimes with pain, 11to 15 indicates that patient is able to walk but always with pain, 16 to 20 indicates that patient was not able to walk.

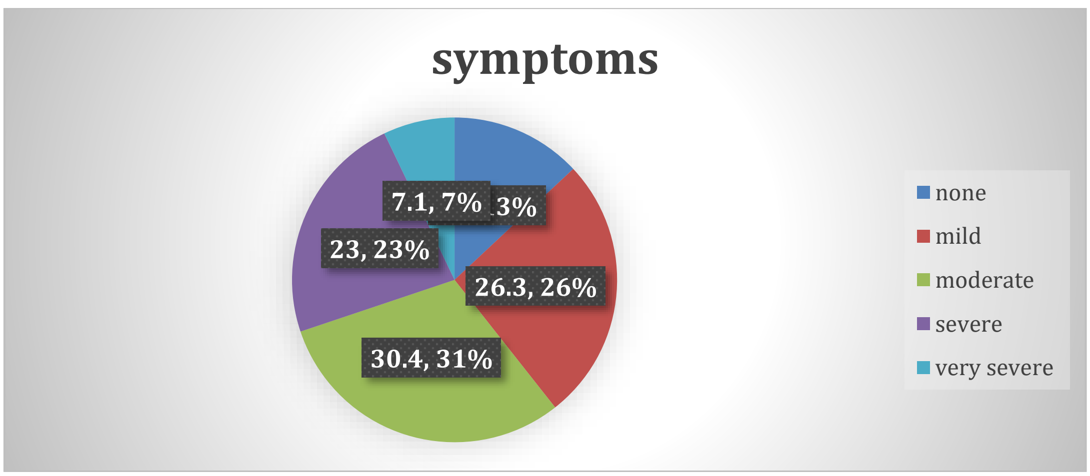
Individuals filled the questionnaire, and Microsoft Excel was used for analysing the results. The data collected was evaluated statistically based on individual responses with the help of a statistician. The results showed that categorical variables might be expressed using both absolute and eleven relative frequencies.

RESULT

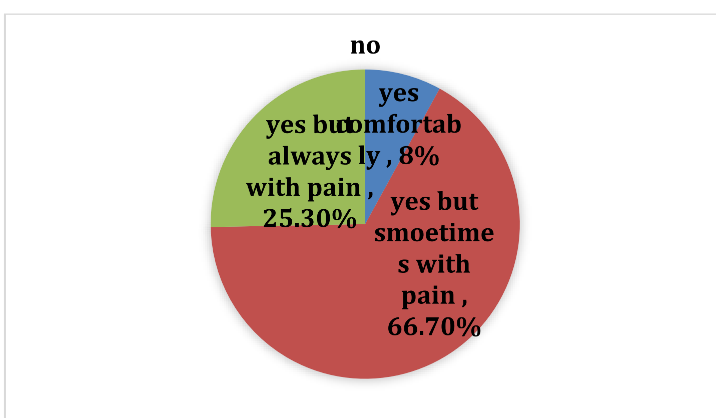
Age and no of sample size



INTERPRETATION:
The age group of 60-65 years comprises the largest portion, making up 29.3% of the total sample, the age group of 66-70 years represents 24.2% of the sample, the age group of 71-75 makes up 22.2% of the sample, the age group of 76 years and above accounts for 24.2% of the sample. So, the oldest participants make up a similar proportion to those in the 66-70 group, indicating that the study includes a broad range of older individuals.



INTERPRETATION:
26.3% of the population experience mild symptoms, while 13% of people have none at all. 23 percent of the population has severe symptoms, 7.1% has very severe symptoms, and 30.4% has moderately affected symptoms.



INTERPRETATION:

8% of people have symptoms but can walk effortlessly, 66.7% of people can walk but frequently suffer from pain, 25.3% of people can walk but always experience discomfort, and 0% of people have symptoms but fail to walk.

Discussion

A cross-sectional study was conducted to determine the prevalence of intermittent neurogenic claudication in the individuals having stenosis of lumbar spine in the elderly population. According to previous research, stenosis of spine is based on alterations in diameter of spinal canal can be treated with epidural steroid injections. This study, gives the prevalence of stenosis of lumbar spine with transient neurogenic claudication in the elderly population.

This study was done in Karad city, Satara district from past 6 months. According to this study we found prevalence of symptoms of stenosis of lumbar spine. The symptoms consist] of radiating pain in leg with pain in buttock, tingling sensation in low back and leg, weakness in lower extremity. First of all, approval of ethical committee was taken. Participants were taken as per the inclusion and exclusion criteria. Respondents were given an explanation of the study and a questionnaire, and they provided informed consent. The individuals were given a Swiss spinal stenosis questionnaire. The questionnaire was distributed to all participants in both online and offline modes, and data was collected. Individuals filled out the questionnaire, and the data was evaluated in Microsoft Excel. With the assistance of statisticians, the gathered data was statistically analysed based on individual responses. The results showed that categorical variables might be expressed using both absolute and relative frequencies.

Neurogenic claudication is the symptom of stenosis of lumbar spine which caused by aging, spinal arthritis, spinal cord injuries, spondylolisthesis. The pain of neurogenic claudication is aggravated by walking and prolonged standing, relieved by sitting and bending forward. Severity of symptoms and functional disability caused by this condition is analysed in this study which includes elderly population that is people above 65 years of age. In which 26.3% of population have mild symptoms. 43.4% of population have moderate symptoms, 23.2% of population have severe symptoms and 7.1% of population have very severe symptoms. 8% of the population can walk comfortably but does have symptoms, 66.7% of the population can walk but sometimes with pain, 25.3% of the population can walk but always with pain and there are 0% of population who have symptoms but cannot walk. As it states that greater severity of symptoms leads to increased functional disability which affects quality of life of those patients.

Conclusion

In summary, the present research concluded that an incredible 87% of the older population having stenosis of lumbar spine with intermittent neurogenic claudication. Spinal degenerative changes, aging, and a sedentary lifestyle could lead to this issue. Postural correction, flexibility exercises, and weight control can help avoid claudication. The symptoms can be avoided with awareness and knowledge.

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