



Research article

EFFECTIVENESS OF FOUR WEEKS SPECIFIC EXERCISE PROGRAM IN NEUROLOGICAL CLAUDICATION- A CASE REPORT

Jakson, K, Joseph¹, Kavya, MS²

¹JSS College of Physiotherapy, JSS old Hospital campus, Ramanuja road, Mysuru,
Karnataka, India.

Received 7th September 2016, Accepted 19th September 2016

Abstract

Neurological claudication is a clinical symptom usually associated with spinal canal stenosis. Symptoms of the neurological claudication includes pain, parasthesia or cramping of legs, aggravated while walking and relieved with rest. Patient education and structured exercise program is one of the inevitable component in conservative management of neurological claudication. A 46 year old male patient was referred for exercise program. Initial assessment was made to address the severity of the symptoms. Patient education and structured exercise programs which includes strengthening and stretching components were administered for one month. The structured exercise program shown to be effective in treating neurological claudication due to spinal canal stenosis.

Key words: Rehabilitation of spondylolisthesis, spinal canal stenosis, neurogenic claudication

© Copy Right, IJAPEY, 2016. All Rights Reserved

Corresponding Author: Jakson, K, Joseph
e-mail: jaksonkj5254@gmail.co

INTRODUCTION

Neurogenic claudication (NC) is a set of symptoms brought about by narrowing of the spinal canal or spinal canal stenosis (SCS) leading to direct mechanical compression or indirect vascular compression of the nerve roots and/or caudaequina (Fannle et al., 1976). Neurogenic means that the problem originates at nerve. Claudication or 'limping' (Latin) is a medical term referring to impairment in walking, or pain, discomfort or tiredness in the legs that occurs during walking and is relieved by rest (Iversen, MD., et al. 2001). The primary symptoms of NC include-pain, discomfort, sensory loss, and

weakness in the legs, reflecting the involvement of the spinal nerve roots within the lumbar spinal canal precipitated by walking and standing and relieved by sitting and bending forward (Tran de QH, 2010). Limited walking ability is the dominant functional impairment caused by neurogenic claudication due to lumbar spinal canal stenosis (Iversen, MD., et al. 2001).

Nonsurgical treatments used for NC include physical therapy, analgesics, anti-inflammatory and anticonvulsant medications and epidural steroid injections (Murphy DR, 2006).

CASE PRESENTATION

A 46 year old male, who is a factory worker was referred to department of Physiotherapy, JSS Hospital, Mysuru with symptoms of neurogenic claudication due to spinal canal stenosis. The radiological examination revealed grade two spondylolisthesis of L4 vertebra. The patient was complaining of low back pain, numbness and weakness of bilateral lower extremity which aggravates with walking

DESCRIPTION OF THE REHABILITATION PROGRAM:

The patient received 4 weeks of self-manageable exercise training program with a frequency of 5 times per week. The duration of the training was up to 1 hour per session. The training program consisted following components.

Education:

The patient was given the information with the help of a video about the condition,

EXERCISES:

The patient received instructions on exercises that are mainly emphasizing on pelvic tilts, spinal stabilization, abdominal muscles strengthening and back muscles lengthening. The patient also received general conditioning exercise in order to improve overall fitness level. Breathing instruction during exercise session was explained prior to each procedure. Adequate warm up and rest period was given between the exercise programs.

1. Pelvic tilts: The patient was encouraged to perform posterior pelvic tilting movements in standing, supine and sitting positions. The initial training was given in supine position by using a pressure bio feedback unit which was kept at the lumbar spine.

2. Abdominal muscles strengthening :

Abdominal crunches: The patient was in supine, with knees flexed, feet flat on the ground and arm folded to chest or by keeping in line with knees. He was asked to slowly lift his head and trunk with an intention to clear the scapula off the floor.

for more than 30 meters or with standing for 10 minutes. The visual Analog Scale (VAS) at the day of evaluation was 9 with walking beyond 30 meters. The pain was relieved by bending forward or sitting for 5 minutes. Oswestry Low Back Pain Disability Questionnaire (OLBPDQ) score was 60% which falls under the category of severe disability.

cause of pain and claudication, disease progression and also how exercise training programs usually respond in spinal canal stenosis. Moreover the instructions and demonstrations were given to the patient regarding body positioning, postural maintenance, and pelvic tilting techniques to reduce lordosis. The patient was also provided with handouts of Do's and don'ts.

He was also instructed flatten the lumbar spine while performing crunches. The procedure was repeated for 10 times with a hold for 5 seconds.

Bilateral knee to chest: The initial position for bilateral knee to chest was same as for pelvic tilts. The upper limbs were kept at sides. The patient was asked to lift and move his knee toward his chest by maintaining flattened lumbar spine. The procedure was repeated for 10 times with a hold for 5 seconds.

3. Back muscle stretching : Self-stretching for back muscles and Gluteus were taught to the patient in supine by doing upper limb assisted unilateral and bilateral knee to same side and opposite side chest movements. The stretches were repeated for 5 times with a hold period of 30 seconds.

4. Stationary bicycle : The patient was advised to perform static cycling for 20 minutes daily with a forward trunk lean. The intention of this was to improve general fitness.

PROGNOSIS

The patient showed significant improvement after 4 weeks of exercise program. He could walk up to 150 meters, and stand for 30 minutes without any signs of neurogenic claudication. Though the symptoms were re-occurring with 200 meters of walking or with 30 minutes of

standing the severity has been considerably reduced with VAS of 2. Oswestry Low Back Pain Disability Questionnaire after 4 weeks was 20% which falls under minimal disability. The patient was able to lift minimal amount of weights with a tuck in abdomen and breathe control.

DISCUSSION ON FINDINGS

Despite many surgical treatment options for treating SCS, it is generally accepted that all kind of conservative treatments should be tried to bring back the patient functional status (Tran de QH, 2010). This case report reveals the importance of structured exercise program in the conservative management of neurogenic claudication associated with spinal canal stenosis due to spondylolisthesis. All the exercises were designed in such a way that all the muscle which promote lumbar flexion were strengthened and muscles which promotes lumbar extension were stretched. For strengthening, exercises were performed in flexion pattern as extension will result in increased lordosis which may worsen the

condition (Murphy, DR., et al. 2006). The current study report is agreeing with results of the study conducted by Sinaki et al. on patients with neurological claudication where the patient who received flexion exercise got maximum benefit when compared to the patients who received extension exercise (Ammendolia, C., et al. 2005). He also strongly suggested that if a conservative treatment program is elected, back flexion or isometric back strengthening exercises should be considered. Stationary bicycle was given to improve lower limb strength and overall endurance without increasing symptoms because sitting and leaning forward will increase the diameter of the spinal canal.

CONCLUSION

The aim of the specific conservative exercise program in SCS must focus on patient education, flexion strengthening and

stabilization exercise for relieving symptoms of neurological claudication.

REFERENCES

- Ammendolia, C., Stuber, K., Bruin, LK, (1976). Nonoperative treatment of lumbar spinal stenosis with neurogenic claudication: a systematic review. *Spine (Phila Pa 1976)*, 37: E609-16.
- Fanuele, JC., Birkmeyer, NJ., Abdu, WA., Tosteson, TD., and Weinstein, JN. (2000). The impact of spinal

problems on the health status of patients: have we underestimated the effect? *Spine (Phila Pa 1976)*, 25:1509-14.

- Iversen, MD., and Katz, JN. (2001). Examination findings and self-reported walking capacity in patients with lumbar spinal stenosis. *Phys Ther*, 81:1296-306.

Murphy., Hurwitz, EL., Gregory, AA., and Clary, R. (2006). A nonsurgical approach to the management of lumbar spinal stenosis: a prospective observational cohort study. *BMC Musculoskelet Disord*,7:16.

Tran de QH., Duong, S., and Finlayson, RJ. (2010). Lumbar spinal stenosis: a brief review of the nonsurgical management. *Can J Anaesth*, 57:694-703.

Site this article:

Jakson, K, Joseph., and Kavya, MS. (2016). Effectiveness of four weeks specific exercise program in neurological claudication- a case report. *International Journal of Adapted Physical Education & Yoga*, Vol. 1, No. 7, pp. 1 to 4.