

EFFECTIVENESS OF MCKENZIE EXERCISES ON PAIN AND DISABILITY IN ACUTE DISCOGENIC SCIATICA

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Abstract

AIM: The aim of the study was to evaluate the effectiveness of McKenzie exercises on pain and disability in acute discogenic sciatica.

METHODS: This study was randomized controlled trial. Study was conducted in different hospital setups which include Khyber teaching hospital, Northwest general hospital. Study was also conducted in the private setups. Duration of the study was from January 2014 to June 2014. Subjects with acute discogenic sciatica aged b/w 18 to 65 were recruited in the study who fulfilled inclusion and exclusion criteria. Total of 30 patients were randomly allocated to McKenzie and non-McKenzie groups. Treatment of McKenzie group (Experimental group) consisted of McKenzie exercises including self-mobilizing repeated movements or sustained positions performed in specific movement directions. Non McKenzie group (Control group) received medications only. Both groups were asked for 15days follow-up. Final assessment was done after 15 days and effectiveness was noted. Visual analogue scale and Oswestry low back pain disability index were used as an outcome measure. Paired T-test and mean, median, mode and standard deviation were used for comparison.

RESULT: Total of 30 patients completed all sessions without any dropouts. Among both groups significant difference was seen in pain intensity and disability. The effectiveness of McKenzie exercises showed a significant reduction in pain intensity ($p=0.000$). Mean reduction in pain intensity was greater in exercise group as compared to control group. Similar means of functional disability was also decreased significantly in exercise group. ($p=0.000$)

CONCLUSION: McKenzie therapy is more effective in reducing pain and disability in patients with acute sciatica in short term follow up than medications.

KEYWORDS: McKenzie therapy, acute sciatica.

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INTRODUCTION

Sciatica is a highly prevalent disorder worldwide. Estimated 5-10 % of patients with low back pain have sciatica. Life time prevalence of low back pain ranges from 49-70%. The annual prevalence of disc related sciatica is 2.2% in the general population.¹ Sciatica is caused by a herniated disc in about 90% of cases. Other possible causes are lumbar stenosis, tumors, facet joint dysfunction and nerve root inflammation. Manage-

ment of sciatica varies considerably. Commonly sciatica patients are treated in the primary care but some proportion is referred to the secondary care. Surgical treatment is indicated if the complaint remains for 6 weeks, or patient with serious and progressive neurological defect.² Typically, individuals having sciatica rely on pharmacological treatment which offer temporary relief at best.³ Standard pharmacological treatment consists of simple analgesics and non-steroidal inflammatory

drugs, however, the role of steroids is controversial.⁴

Proper management of sciatica calls for manual physiotherapeutic intervention. There is consensus that treatment of sciatica in first 6 to 8 weeks should be conservative.⁵ To date, several physiotherapeutic approaches have been employed for the treatment of sciatica. It includes strengthening and stretching exercises, McKenzie exercises, aerobic exercises, ultrasound, acupuncture, hot packs/ ice packs, traction and joint mobilization.⁶ Clinical guidelines currently being used recommend advice, and simple analgesics for acute low back pain patients as first line of treatment.⁷ Although it is not recommended in most guidelines but exercises are also prescribed for

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these patients. In USA, for treatment of acute low back pain patients, two-third of physician include exercises in their initial care.⁸ McKenzie method consists of clinical examination that include posture exam, range of motion, and symptomatic response of patient to different loading strategies. This clinical examination classify the low back pain into one of the three syndromes.⁹ Derangement syndrome, Dysfunction syndrome and Postural syndrome.

The main component of McKenzie method is exercise which consists of repeated movements and sustained postures. It also includes education and postural training. McKenzie method is used to promote rapid symptomatic relief. Main component is to teach patients simple strategies to manage their pain. For example one pattern of symptomatic response is "centralization" that is observed during the loading strategies. Centralization is a phenomena in which the referred pain from the spine is progressively decreased.¹⁰ In this randomized controlled trial, patients with acute sciatica first consulting primary care physicians were randomized either to receive first line care alone or first line care and exercise therapy program based on McKenzie method.

METHODS

Participants who fulfilled the inclusion criteria were included in the study. Detailed information was provided to the participants and informed voluntary written consent was sought. Initial physical assessment was done by using McKenzie lumbar spine assessment chart. Patients were also assessed for pain and disability by filling self-reporting pain and disability questionnaire (Oswestry low back pain scale or Oswestry disability index). After filling McKenzie lumbar spine assessment chart and ODI, all pretest data were recorded.

Total of 30 patients were randomly allocated to McKenzie and

non-McKenzie groups. Treatment of McKenzie group (Experimental group) consisted of McKenzie exercises including self-mobilizing repeated movements or sustained positions performed in specific movement directions. Non McKenzie group (Control group) received medications only. Experimental group received a treatment session of 1hour. McKenzie exercise sheets were provided to the patients to perform the prescribed exercises at home. Patients were encouraged to perform the prescribed exercises regularly in two sessions (morning session and evening session) with total of 10 repetitions. Final assessment was done after 15 days and effectiveness was noted. Patients were encouraged not to seek any other kind of physical therapy treatment during 15 days' time period. Adherence with home exercises was regularly assessed for participation in McKenzie group by phone call. After completion of 15 days treatment of every patient of both the groups (McKenzie and non-McKenzie group), patients were again reassessed for reduction in pain and disability by filling again pain and disability questionnaire (Oswestry low back pain scale). All post groups data of both groups were recorded.

RESULTS

The study showed significant decrease in intensity of pain and

functional disability in patients after McKenzie therapy and receiving medications from their doctors for management of acute sciatica. However, improvement in pain and disability is more significant in patients of experimental group in which McKenzie exercises were given ($p=0.000$ with 95% of confidence interval).

Initially, a total sample size of 30 patients were included in this inquiry. Study findings reveal the mean age as 30.30 in experimental and control group. On initial assessment, Oswestry disability index for back pain showed that experimental group had 68.27 mean and control group mean was 69.73. The initial VAS scores reveal that there was a mean of 7.40 in experimental group and 7.13 in control group.

On follow up after 15 days the post Oswestry score in experimental group had a mean of 24.27 and control group mean was 40.13. Similarly, the post VAS score in experimental group had mean of 3.53 and control group mean was 4.67 (Table1).

DISCUSSION

The purpose of this study was to evaluate effectiveness of McKenzie therapy on pain and disability in acute discogenic sciatica. After 15 days follow up, t-test showed significant differences between McKenzie (MG) and non-McKenzie (NMG) with regards to reduction in pain and dis-

Table: 1

Group	N	Mean	Std. Deviation	Std. Error Mean
Experimental Group	15	68.27	4.131	1.067
Control Group	15	69.73	5.120	1.322
Experimental Group	15	24.27	3.693	.954
Control Group	15	40.13	7.945	2.051
Experimental Group	15	7.40	.632	.163
Control Group	15	7.13	.516	.133
Experimental Group	15	3.53	.640	.165
Control Group	15	4.67	.488	.126

ability.

The study showed significant decrease in intensity of pain and functional disability in patients after McKenzie therapy and after receiving medications from their doctors for management of acute sciatica. However, improvement in pain and disability is more significant in patients of experimental group in which McKenzie exercises were given ($p=0.000$ with 95% of confidence interval).

In experimental group pain intensity was more (mean=7.40) than in control group (mean=7.13) and when compared there was decrease level of pain intensity between the two groups. Patients in experimental group receiving McKenzie exercises had significant reduction in pain intensity (by 3.53).

This study also showed significant reduction in disability among patients ($p=0.000$ with 95% of confidence interval) in experimental group after McKenzie exercises. Pre-disability scores in both groups were high. In experimental or exercise group it was (mean=68.27) and in control group (mean=69.73).

Significant decrease (mean=24.27) in functional disability among patients receiving McKenzie exercises was observed.

Previous studies have also shown the effectiveness of McKenzie therapy on pain and disability in acute sciatica. The findings of this study are consistent with previous studies, such as the work done by Petersen et al. in 2002 in which they compared McKenzie therapy with intensive strengthening exercises and found that McKenzie therapy was more effective in short term follow up ($P=0.01$) in reducing LBP which support the results of the study. Similarly,

the findings of current study are similar to the results of Slade et al in 2007 who conducted a review that McKenzie exercises improve pain and function compared to no treatment. In addition, the study also support a review by Clare et al in 2004 that McKenzie therapy results in greater reduction in pain and disability in short term follow up for low back patients.

CONCLUSION

In conclusion, this study recommend that treatment based on McKenzie therapy is more effective in reducing "pain and disability" in patients with acute sciatica in short term follow up as compared with medications. Treatment program based on conventional therapy doesn't produce satisfactory results in patients suffering from acute sciatica.

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NOTES ON CONTRIBUTORS

The study was part of MK's Bachelors in Physical Therapy Education. DAK, MIK super-vised the dissertation, and was involved in every part of the analysis, idea's development, and write-up.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

ETHICS APPROVAL

The approval/permission was obtained from Khyber Medical University Research and Ethics Board.

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