ejpmr, 2021,8(1), 124-127

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

COMPARISON OF WILLIAM FLEXION AND MCKENZIE EXTENSION EXERCISES IN CHRONIC LOW BACK PAIN PATIENTS

Iqra Yaseen[1], Heena Habib, Ayesha Asif, Muhammad Arsalan, Asma Aleem, Rabbia Tariq and Muhammad Waqas*

School of Physical Therapy, Johar Institute of Professional Studies, Lahore, 54000.

***Corresponding Author: Dr. Muhammad Waqas**

School of Physical Therapy, Johar Institute of Professional Studies, Lahore, 54000.

Article Received on 11/11/2020 **Article Revised on 01/12/2020** **Article Accepted on 21/12/2020**

ABSTRACT

Chronic back pain defined as pain that lasts for 7–12 weeks or may persists beyond the predictable period of restoration. A Randomized controlled trial study was conducted at department of Physiotherapy in Mayo Hospital Lahore. 40 Sample of patients having age group of 20-60 years were placed in two groups. The Williams flexion exercise was applied in first group while McKenzie extension exercise technique was applied in later group for a window of of 4 weeks. The visual analogue scale (VAS) for pain assessment and Oswestery low back pain disability index (OLBPDI) to quantify disability due to low back pain, were used to asses all the patients before and after 4 weeks of physical therapy intervention. Data was scrutinized by SPSS and statistical test was applied at 95% level of significance, results in determination of the efficacy of both treatment regimens, thereafter compared with each other. Comparative study revealed better result in refining pain and dipping physical disability in first group.

KEYWORDS: chronic low back pain (CLBP), McKenzie extension exercise, William's flexion exercise, visual analogue scale (VAS), Oswestery low back pain disability index (OLBPDI).

INTRODUCTION

Pain and stiffness in lower part of back entitled as low back pain (LBP), which is related to musculoskeletal disorder, distressing 84% people globally at some point in their lives. Women are majorly affected by this stressful LBP. Physiologically, Spine is surrounded by numerous structures like ligament and muscles. Straining is the basis for disability of musculoskeletal structures may results in LBP. The risk aspects and grounds for staining may include poor body posture, obesity, overweight and poor balance between back & abdominal muscles.[1]

LBP origin remains uncertain in most cases but the precise cause of the pain is identified in only 15% of the cases even after careful assessment and specific measurements. LBP is typically classified as specific or non-specific while the latter is defined as symptoms without a specific cause and accounts for 85-90% of the total people suffering from LBP. Several interventions are used for the management of LBP on the basis of assessment of patient. Generally pain that persist lesser than six weeks is referred as acute likewise pain from six to twelve weeks termed as sub-acute while falling in window of more than twelve weeks is entitled as chronic pain. Acute back pain may become chronic due to physiological, psychological, anatomical and social aspects.[2]

The lumbar vertebral column comprises of five intervertebral disc and five vertebrae, in which intervertebral discs play a vital role in the functioning of the spine. The permitted motions in vertebral segments are translational motion in the long axis of the spine, rotatory motion around a vertical axis, antero-posterior and lateral bending on sagittal axis.[3]

Correlation between clinical examination and patho-anatomical findings is critical to determine their significance and relationship to the disorder. If pain is constant, non-remitting, and widespread and is not greatly influenced by mechanical factors, then inflammatory or centrally driven neurophysiological factors (such as altered central pain processing) are likely to dominate the disorder. In such cases high levels of fear, anxiety, and emotional stress present as precipitating factors. These patients usually presented with antalgic movement patterns and altered motor control. Specifically targeted therapy management may indicated for some of these disorders in conjunction with other primary medical interventions with full knowledge of the non-mechanical underlying basis of the disorder.[4]

The McKenzie-method of mechanical diagnosis and therapy (MDT) is widely used for primary care treatment. McKenzie treatment prescribes a series of individualized exercises and is the most commonly practiced by physiotherapists for the management of

LBP.[5] Subsequently, Mechanical LBP is classified into three syndromes-, dysfunction, postural, and derangement syndromes by McKenzim.[6]

Table 1.

	N	Minimum	Maximum	Mean	Std. Deviation
age of the patient	40	22.00	60.00	37.8000	10.19351
Valid (N)					

Subjects were equally distributed and randomly allotted (computer generated simple random table) to two groups. Group 'A' received a knock of William's flexion exercise while Group 'B' treated with McKenzie extension exercises technique.

Inclusion Criteria

Patients with chronic pain dysfunction syndrome of age from 20 to 60 years were included in this study.

Exclusion criteria

Patients with bony anomalies, pregnant women, radiculopathies, spondylosis and spondylolysthesis, tuberculosis of spine or rheumatoid arthritis and suffered from inflammatory rheumatic disease were excluded from this trial.

METHODOLOGY

Consent was taken from each patient through consent form. After physical examination by the therapist the data was collected. A visual analogue scale (VAS) was used for pain assessment. Disability caused by chronic LBP was assessed by OLBPDI. After that patients were randomly assign in Group A or Group B.

The Physiotherapy management was

Group A: 20 patients were included in William's flexion exercise group. The protocol was followed as

- Double knee to chest exercise 05 times a week (5-8 repetitions) for 04 weeks.
- Bilateral SLR 05 times a week (5-8 repetitions) for 04 weeks
- Single knee to chest 05 times a week (5-8 repetitions) for 04 weeks

Group B 20 patients were included in McKenzie extension exercise group. The protocol was followed as

- Extension in prone lying05 times a week(5-8 repetitions) for 04 weeks
- Pelvic bridging 05 times a week (5-8 repetitions) for 04 weeks

Follow up

Patient's condition was later assessed after 04 weeks. VAS and OLBPDI was again reassessed and observations were made ensuring that the desired goals, aims and objectives were met or not.

For statistical analysis data was entered and analyzed through SPSS version 20. Quantitative variables were presented in the form of mean ±SD along its range (max-min). T-test was applied to compare the mean differences of quantitative variables. P-value (<0.05) will be taken as significant.

MATERIALS AND METHODS

Study design: Study comprises of 40 patients with complaints of CLBP, was conducted at department of Physiotherapy at Mayo Hospital Lahore.

RESULTS AND DISCUSSION

The purpose of this study was to compare the effectiveness of William's flexion and McKenzie exercises for the treatment of CLBP. Patients with Dysfunction syndrome identified as to have had trauma or a postural problem producing adaptive shortening of the soft tissues. Pain is triggered by impaired posture and overuse, movement in the spine is restricted and there is pain at the end range.[7] Table 2 and figure 1 shows the frequency of movement causing CLBP in patients included in study. McKenzie exercises for LBP are beneficial treatment for improving the pain with better relief and increasing flexibility of spine.[8] The intensive dynamic strength training and McKenzie method seems to be equally effective in the treatment of patients with acute, subacute or chronic low back pain.[9] There is some evidence that the McKenzie method is more effective therapy for acute LBP; however, the magnitude of the difference suggests the absence of clinically worthwhile effects. We investigate the effect of McKenzie exercises and William flexion on patient with CLBP in terms of decreasing values of VAS and OLBPDI.

Difference between the VAS of Group A i.e. William's flexion and Group B i.e. the McKenzie exercises was calculated by paired sample statistics for T test. Table 3 shows that compliant of pain is reduced in Group B. Moreover the degree of disability was tested by OLBPDI. It was observed that McKenzie exercises regimes the better option of reducing the degree of disability in patients suffering with CLBP as shown in Table 4.

There is limited evidence for the use of McKenzie method in chronic LBP. The effectiveness of classification-based McKenzie is yet to be established.[10] William's flexion and McKenzie extension exercises technique commonly used interventions for back pain management so we want to study the two in order to identify the better of these two treatments to improve the patient care. Recent management guidelines for chronic LBP recommended exercise for returning to physical activity.[11] As per recommendations extension exercises must be used in

acute phase, lumbar flexion exercises should be used in later stages when patient has full range of spinal flexion and extension.[12]

Johnson compared the efficacy of McKenzie exercise, endurance training and back care education and concluded that McKenzie exercise was effective in modulating long-term LBP and proposed that a combination therapy involving McKenzie exercise and endurance training was more effective.[13] Paired sample correlation is shown in table 5 and figure 2. It is seen that the McKenzie exercise regime is better to reduce pain and physical disability in patients with CLBP.

Table 2: Frequency of back pain in Group A & Group B.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	flexion	15	37.5	37.5	37.5
	extension	14	35.0	35.0	72.5
	both	11	27.5	27.5	100.0
	Total	40	100.0	100.0	

Table 3: paired sample test for Visual Analog Scale (VAS).

	Paired Differences					t	df	Sig. (2-tailed)
GA VAS pre GA VAS post	Mean			95% Confidence Interval of the Difference				
				Lower	Upper			
GB VAS pre	4.550	18.514	19	.000	5.064	18.514	19	.000
GB VAS post	4.05000	15.208	19	.000	4.40739	15.208	19	.000

Table 4: paired sample test for Oswestery Disability Index (ODI).

	Paired Differences					t	df	Sig. (2-tailed)
GA VAS pre GA VAS post	Mean			95% Confidence Interval of the Difference				
				Lower	Upper			
GB VAS pre	19.800	7.777	1.739	16.160	23.440	11.386	19	.000
GB VAS post	18.350	8.592	1.921	14.329	22.371	9.551	19	.000

Table 5: Paired sample correlation of pain & physical disability.

		Improvement in pain (sig. value)	Physical disability (sig. value)
Group A	20	0.038	0.053
Group B	20	0.009	0.012

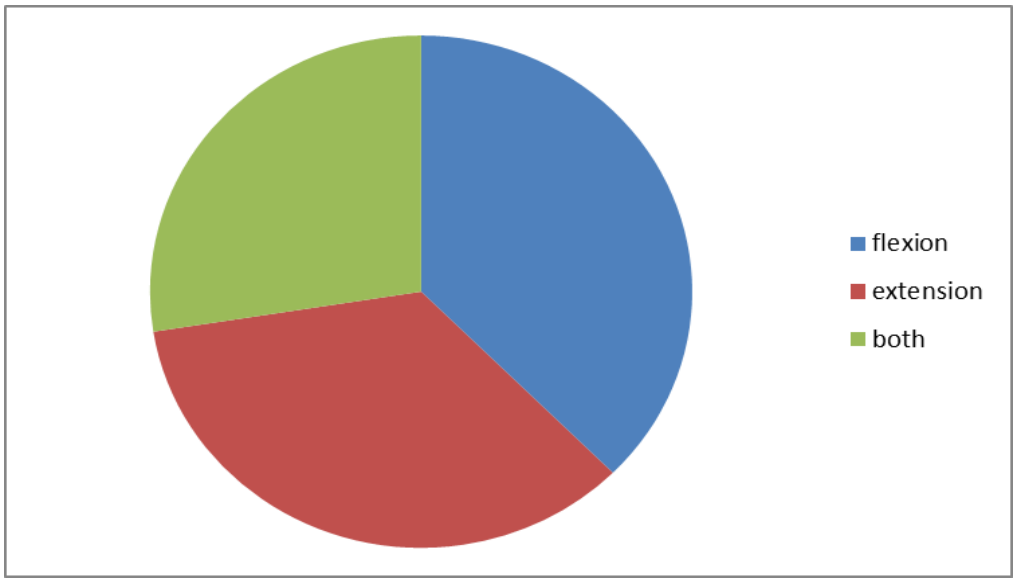

Figure 1: Pie chart showing frequency of back pain in group A & B.

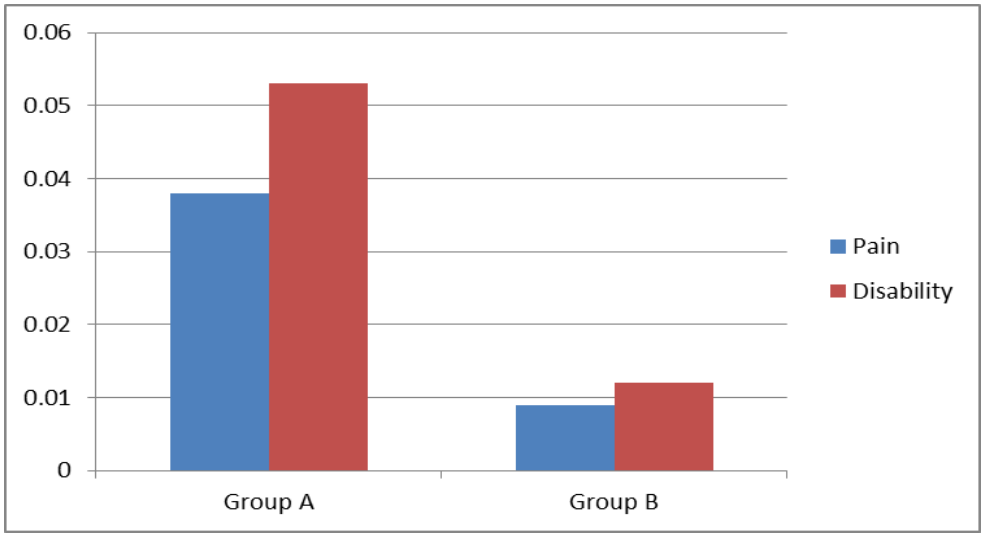

Figure 2: Bar chart showing relationship of pain & physical disability in Group A & Group B.

Conflict of interest

Authors declare no conflict in interests.

REFERENCES

1. Lehrich JR, Katz JN, Sheon RP. Approach to the diagnosis and evaluation of low back pain in adults. Annals of internal medicine, 2005; 142(9): 765-775.
2. Manusov EG. Evaluation and diagnosis of low back pain. Primary Care, 2012; 39(3): 471.
3. Koes BW, Van Tulder M, Lin CW, Macedo LG, McAuley J, Maher C. An updated overview of clinical guidelines for the management of non-specific low back pain in primary care. European Spine Journal, 2010; 19(12): 2075-94.
4. Elvey R. A contemporary approach to manual therapy. Grieve's modern manual therapy, 2004; 471-94.
5. McKenzie RA, May S. The lumbar spine. Mechanical diagnosis & therapy, 1981; 1: 374.
6. Blackburn SE, Portney LG. Electromyographic activity of back musculature during Williams' flexion exercises. Physical therapy, 1981; 61(6): 878-85.
7. Van Tulder M, Koes B. Low back pain (chronic). Clinical evidence, 2006; 15: 1634-53.
8. McKenzie RA, May S. The lumbar spine. Mechanical diagnosis & therapy, 1981; 1: 8-120.
9. Skikić EM, Trebinjac S. The effects of McKenzie exercises for patients with low back pain, our experience. Bosnian journal of basic medical sciences, 2003; 3(4): 70-5.
10. Petersen T, Kryger P, Ekdahl C, Olsen S, Jacobsen S. The effect of McKenzie therapy as compared with that of intensive strengthening training for the treatment of patients with sub-acute or chronic low back pain: a randomized controlled trial. Spine, 2002; 27(16): 1702-9.
11. Machado LA, De Souza MV, Ferreira PH, Ferreira ML. The McKenzie method for low back pain: a systematic review of the literature with a meta-analysis approach. Spine, 2006; 31(9): 254-62.
12. Williams PC, Charles C. Thomas Publisher. Low back and neck pain: causes and conservative treatment. *Physical Therapy*, 1975; 55(10): 1169–1170.
13. Johnson OE, Adegoke BO, Ogunlade SO. Comparison of four physiotherapy regimens in the treatment of long-term mechanical low back pain. Journal of the Japanese Physical Therapy Association, 2010; 13(1): 9-16.