Effect of McKenzie extension in chronic low back pain patients.

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Abstract:

Back pain that continues for more than 7–12 weeks is defined as chronic back pain. It may also defined as pain that remains beyond the expected period of healing, and admitted that chronic pain may not have well-defined underlying pathological causes. At department of Physiotherapy in Mayo Hospital Lahore a Randomized controlled trial study were conducted. Sample of 40 patients of age group of 20-60 years and placed into a two groups. The McKenzie extension exercise technique was applied on chronic low back pain patients for 4 weeks. The visual analogue scale for pain assessment, and Oswestery low back pain disability index (OLBPDI), to quantify non functionality due to low back pain, was used to asses all the patient's condition before treatment and after treatment of 4 weeks of physiotherapy intervention. To determine the efficacy of Mckenzie exercise on patients SPSS was used to analyze data and also statistical test was applied at 95% level of significance. After giving treatment to patients with McKenzie extension exercise technique shows result in p=0.009 which means marked improvement in pain and decreasing physical disability (p=0.012)

Key words: chronic low back pain (CLBP), McKenzie extension exercise, visual analogue scale (VAS), Oswestery low back pain disability index (OLBPDI)

Introduction:

Simply Pain and stiffness in low back is called low back pain. A musculoskeletal disorder of LBP affects 84% people at some point in their daily activities. Women are most commonly affected by LBP. Ligament and muscles surround the lumber supine. When stability of spine loses by straining of these structures, it converts in LBP. Poor body posture, obesity, overweight and weak back and abdominal muscles are risk factors and causes for straining. [1]

In most cases LBP origin remains uncertain, and after careful assessment and specific measurements in only 15% of cases the precise cause of pain is identified. Specific or non-specific LBP are types of LBP. Non-specific LBP is termed as symptoms without a specific cause and involves 85-90% of people with low back pain. From a clinical aspects, disc and facet joint-related disorders of the spine are considered to occur with high percentage of the LBP population. In management of LBP several treatment interventions are used on the basis of

assessment of patient.[2] Acute pain remains for less than 6 weeks, sub-acute pain lasts 6 to 12 weeks and more than 12 weeks is chronic low back pain.[3] Acute back pain including anatomical, psychological, physiological and social aspects with long duration converts to complex chronic pain disorder.[4]

The lumbar vertebral column is made up of 5 intervertebral disc including five vertebrae. The intervertebral disc plays important part in the spine's functioning. The translational motion along long axis allows motions between vertebral bodies, rotations in vertical axis, Antero-posterior bending and lateral bending. The flexion ranges at lumbar region are 80^{o} at L1-L2, 90^{o} at L2-L3 and 120^{o} at L3-L4 and L5-S1. [5]

If pain is persistent, default, and universal and is not affected by mechanical factors then inflammatory or centrally driven neurophysiological factors are aggravating the disorder. In such cases precipitating factors are extraordinary fear, anxiety, and emotional stress. These patients have changed motor control functions and antalgic movement patterns too. Specific therapy management in combination with other primary medical treatments are used to deal patients with chronic low back pain. These disabilities considered a little but seriously paralyed group within the chronic LBP population.[6]

The mechanical diagnosis therapy (MDT) is a McKenzie method which is largely used within primary care. McKenzie protocol therapy specifies a set of individualized exercise programs. McKenzie treatment by physiotherapists was most widely used procedure for the treatment of patients with LBP.[7] Dysfunction, postural, and derangement syndromes are three basic syndromes of LBP by McKenzie .[8]

Materials and Methods:

Study design: At department of Physiotherapy in Mayo Hospital Lahore, there was a clinical, prospective and manipulative study were conducted

30 subjects who have complaints of CLBP were selected. Table 1, shows the illustrative statistics of the patient's age included in the study.

McKenzie extension exercises technique was applied for 4 weeks on patients with chronic LBP

Inclusion Criteria: includes age group 20-60 years, Patients with chronic pain syndrome, and also associated with restriction in extension and flexion

Table 1	No.	Min	Max	mean	Standard Deviation
Patient's age	30	21	58	31.47	10.233
Valid N (listwise)	30				

movements.

Exclusion criteria: include patients who can't stand or walk with acute episode of pain, patients with bony anomalies, pregnant women, radiculopathies, spondylosis and spondylolysthesis, tuberculosis of spine or rheumatoid arthritis and suffered from inflammatory rheumatic disease.

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 treated with McKenzie exercise for 4 weeks

The Physiotherapy management was:

30 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.

By using SPSS version 20 statistical analysis data were entered and analyzed. Quantitative variable was introduced in mean ±SD along its range of min to max. T-test was applied to compare the mean differences of quantitative variables. P-value less than 0.05 will be considered as remarkable value.

Conclusion and Discussion:

The goal of this study was used to check the McKenzie exercise effectiveness for the treatment of CLBP. Patients with Default syndrome are considered having trauma or a postural issues causing adaptive shortening of the soft tissues. Pain is activated by altered posture and overworked, spinal movement is limited and painful end ranges.[9] The intensive dynamic strength training and McKenzie method sounds like equal effect on the treatment of patients with low back pain.[11] It may be suggested that the McKenzie method is more satisfactory therapy for acute LBP; however, the measure of the difference indicates the absence of clinically useful effects. We investigate the effect of McKenzie exercises on

patient with CLBP in terms of decreasing values of VAS and OLBPDI.

Difference between the pre VAS and post VAS of McKenzie exercises was calculated by paired sample statistics for T test. Table 2 shows that compliant of pain is reduced in patients after treatment. 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 3.

There is little proof for the advantage of McKenzie treatment protocol in chronic LBP. The efficacy of McKenzie treatment exercises are yet to be established.[12] 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 treatment recommendations for chronic LBP suggested exercises for returning to physical practices. [13] 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.[14]

Johnson differentiate the effectiveness of McKenzie exercise, back care facilitation and endurance training program. He wind up with that conclusion, the McKenzie exercise was useful in adjusting long-term low back pain but suggested that a conjunction therapy including McKenzie protocol and endurance training was more beneficial then McKenzie protocol solely.[15] It is seen that the McKenzie exercise regime is better to decrease pain and physical disfunction in patients with CLBP.

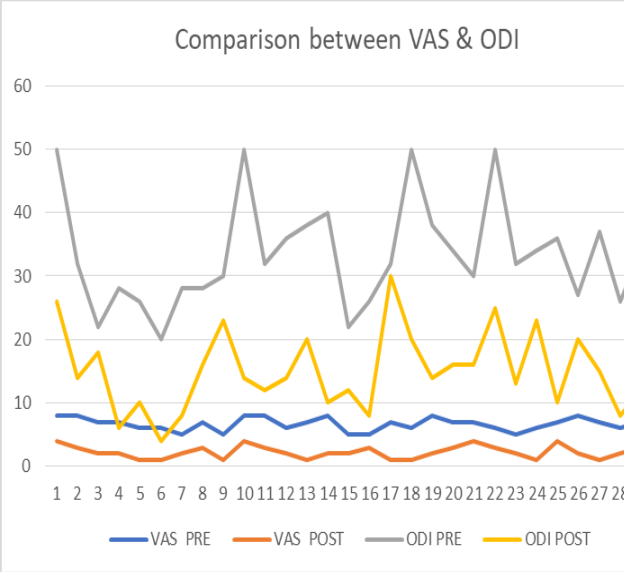
Table 2: paired sample test for Oswestery Disability Index (ODI)

	Paired difference					T	Df	Significant 2-tailed
	mean	Standard Dev.	Standard error Mean	95% confidence interval Differences LOWER	UPPER			
Pair 1 PRE-VAS – POST VAS	4.40000	1.13259	0.20678	4.04865	4.75135	21.278	29	.000
Pair 2 PRE_ODI - POST_ODI	18.63333	7.93284	1.44833	16.17243	21.09423	12.865	29	.000

Table 3: Paired sample correlation of pain & physical disability.

	N	Correlation	Sig.
Pair 1 PRE_VAS & POST_VAS	30	.424	.019
Pair 1 PRE_ODI & POST_ODI	30	.439	.015

Figure 1: Bar chart showing relationship of pain &physical disability



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