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Original research article

Effectiveness of physiotherapy on functional status in patients with chronic low back pain

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Abstract

Background: Chronic low back pain (cLBP) represents one of the major causes of disability worldwide. Physiotherapy exercises play an important role in Chronic LBP treatment as well as prevention.

Aim: The present study aims to examine the effect of physiotherapy on LBP.

Materials and Methods: 50 patients with chronic low back pain age ranged from 18-60 years and both genders joined the study. All the eligible subjects received physiotherapy treatment and monitored effect of physiotherapy on range of trunk and spine motion in term of trunk flexion, trunk extension. Right Side Bending, Left Side Bending, SLR Right and SLR Left.

Results: The mean age ± SD of the subjects was 48.6 ± 9.17 years with female dominance (52%) Significant improvement of range of motion (Extension, bending and SLR) was observed after physiotherapy treatment as compared to the before physiotherapy treatment.

Conclusion: Our results strongly recommend physiotherapy as an effective treatment method for chronic low back pain because it reduces pain and improve range of trunk motion.

Keywords: Chronic low back pain; LBP, physiotherapy treatment, range of motion

Introduction

It has been reported that 60-80% of people will experience Low Back Pain (LBP) over the course of their lifespan [1]. As the incidence of chronic LBP gradually increased, more effective treatment methods will need to be continuously researched. Chronic LBP patients generally undergo management and treatment by physical therapists. However, physical therapists have not yet established a proper management system for the patients [2-4].

The effectiveness of physiotherapy in patients with LBP does not solely depend on providing the most adequate physiotherapy interventions. It also highly depends on patients' adherence to prescribed (home) exercises and recommended physical activity behavior [5-6]. Earlier research showed that 45-70% of patients do not adhere to prescribed exercises and physical activity recommendations [7-8], whereas adherent patients with LBP who continue a physically active lifestyle have a reduced risk of recurrent LBP. Therefore, supporting self-management and adherence in patients with LBP is expected to be essential for the effectiveness of physiotherapy interventions on patients' physical functioning and prevention of recurrent events [9-10]. There are many treatment options in chronic LBP including surgical and non-surgical treatment. The conservative approaches include pharmacological and non-pharmacological treatment, often used in combination. Of non-pharmacological type of treatment, the physiotherapy (PT) is an essential part of complex therapy for improving functionality and preventing disability [11].

Modern guidelines to treat LBP are targeted at identifying the three main domains influencing the symptoms-biological, psychological and social. The biological domain includes features such as tissue pathology, motor control problems, central and peripheral sensitization, immune system responses, changes in brain structure and behavior. The psychological influence is expressed by pain coping pain catastrophization, kinesiophobia, depression, anxiety, distress, pain behavior and these have different implications for the treatment. The social domain includes the possibility of working, satisfaction, and social support [12-13].

Aim: This study was designed to check the effectiveness of physiotherapy on range of trunk and spine motion in chronic LBP patients.

Material and Methods

This prospective study was conducted in the Department of Physiotherapy in a tertiary care hospital, India. A total of 50 patient with18-60 years age group suffering for chronic non-specific low back pain.

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Inclusion criteria: Chronic low back pain patients with age ranged 18-60 years, who give written informed consent, were included in our study.

Exclusion criteria: Spinal pathologies like fractures, tumour and inflammatory pathologies, Cardio respiratory diseases, history of spinal surgery pregnancy, spinal deformity and degenerative conditions of spine, were excluded from the study.

The socio-demographic data was collected from patient records included; subject age, gender, BMI and duration of LBP. All the Participants were evaluated for range of motion of the trunk. In range of motion measurements of trunk flexion, extension, right side bending, left side bending, right straight leg raise (SLR) and left SLR.

The physiotherapy was administered to the waist region by the physiotherapist, for a total of 10 sessions, five days per week, with a single session per day. The sessions included a hot pack, ultrasound, and TENS treatment. Hot pack therapy was applied for 20 min and ultrasonic therapy for five min in continuous form at a frequency of 1 MHz and a density of 1.5 W/cm² [14]. In addition, TENS treatment was given in the following form: continuous, with strength of 100 Hz, 40 μSN for 30 min. After the intervention, all subjects were evaluated to investigate treatment effects.

Statistical analysis: All statistical analyses were performed with SPSS 18.0. All data were summarized as the mean ± standard deviation. The p value <0.05 was considered statistically significant.

Results

A total of 50 patients of 18-60 year age group were enrolled in our study. The majority of the patients 44% were 46-60 years age group, mean age was 48.6 ± 9.17 years. Slight male predominance (52%) was found. The mean BMI was 29.4 ± 5.0 and was mean duration of LBP (months) was 17.4 ± 2.2. Demographic characteristics of subject are shown in Table 1.

Table 1: Socio-demographic characteristics of study subject

Socio-Demographic Data Characteristics		Frequency (%)
Age group	18-30 years	12 (24%)
	31-45 years	16 (32%)
	46-60 years	22 (44%)
Age in Years Mean ± SD	48.6 ± 9.17	
Gender	Male	24 (48%)
	Female	26 (52%)
Body mass index (Kg/m^2)	29.4 ± 5.0	
Duration of LBP (months)	17.4 ± 2.2	

Table 2: Comparison of trunk motion between pre and post physiotherapy treatment

Trunk motion	Pre treatment	Post treatment	P value
Lumber spine extension	33.70 ± 10.72	44.95 ± 12.53	P<0.001
Right Side Bending	9.06 ± 2.93	17.62 ± 1.46	P<0.001
Left Side Bending	8.16 ± 2.49	18.42 ± 1.23	P<0.001
SLR Right	50.9 ± 8.16	75.92 ± 6.91	P<0.001
SLR Left	55 ± 5.67	79.42 ± 4.75	P<0.001

Significant improvement of range of trunk and spine motion was seen after post physiotherapy treatment as compared to pre-treatment (P<0.001).

Discussion

Physiotherapy could be a viable therapeutic modality for chronic pain conditions that results in helpful effects on pain, sleep, psychological feature, and physical functions. International pointers for managing pain in older adults suggest conservative, non-medicinal management, together with mostly exercise-based therapies [15].

Most of the Chronic LBP subjects were female as compared to male observed in current study; similar finding also reported by Wajswelner *et al*. [16] and Rydeard *et al*. [17].

The mean age ± SD of the participant was 48.6 ± 9.17 years, comparable with the Quinn *et al*. [18] and Gladwell *et al*. [19].

In our study the mean BMI was 29.4 ± 5.0 Kg/m^2 and duration of chronic LBP were 17.4 ± 2.2 our findings were consistent with the Şahin *et al*. [20] and E Alkady *et al*. [21].

Present study observed the range of trunk and Lumber spine motions, like trunk extension, Right Side Bending, Left Side Bending, SLR Right and SLR Left are significantly increased (p<0.05) after physiotherapy treatment, similar findings reported by many other researchers like: Fahmy *et al*. [22],

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Taeseong Ju *et al.* [23] and Hosseinifar M *et al.* [24].
Physiotherapy techniques may help to mobilization the spine and to strengthen the body part muscles. It incorporates continuous various movements and also, the direction for exercise depends upon the patients' response to those repeated movements.

Conclusion
In conclusion, physiotherapy treatment for chronic low back pain patients should ideally provided improvement in range of trunk and spine motions, which enhance the funtional status of the patients and improve quality of life.

Conflicts of interest: None.

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