

ORIGINAL SCIENTIFIC PAPER

The Effect of Physical Therapy in Patients with Chronic Low Back Pain

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Abstract

Low back pain is the most common cause of disability. Epidemiological studies have generally considered that risk factors for starting backache are interrelated in three dimensions: individual factors and lifestyle, physical or biomechanical factors, and psychosocial factors. The main aim of this study was to evaluate the efficacy of physical therapy in patients with chronic non-specific low back pain. This retrospective study was conducted at the Diagnostic Therapeutic Center Rezonanca, Department of Physiotherapy in Prishtina, Kosovo, during the period January-March 2017. Analyzed data were collected from year 2015-2016, included physiotherapeutic reports of patients of both sexes, Lasegue's test and improvement of the patients after 10 sessions of physical therapy treatment. The main criteria for inclusion in the research was chronic non-specific low back pain with a duration of more than 6 months. According our results we found statistical significance difference regarding the overall condition of treatment from the total number of patients ($t=2.004$, $p<0.05$). Based on this research we can conclude that physical therapy is highly effective treatment in reducing chronic non-specific low back pain.

Key words: *pain, exercises, lumbar region*

Introduction

Low back pain (LBP) is a major health problem also the most common cause of disability (Garcia et al., 2013; Manek & McGregor, 2005). Low back pain is defined as any pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal fold, pain may be radiated through the leg or not. Epidemiological studies have generally considered that risk factors for starting backache are interrelated in three dimensions: individual factors and lifestyle, physical or biomechanical factors, and psychosocial factors (Maniadakis & Gray, 2000). Low Back Pain has a point prevalence of about 7 to 33% and lifetime prevalence of nearly 85%, it affects about 70-85% of individuals once in their lifetime (Unsgaard-Tondel, Fladmark, Salvesen, & Vasseljen, 2010; Al-Obaidi & Mahmoud, 2014; Davies et al., 2014; Dunsford, Kumar, & Clarke, 2011).

The purpose of this study was to evaluate the efficacy of

physical therapy in patients with chronic non-specific low back pain.

Methods

This retrospective study was conducted at the Diagnostic Therapeutic Center Rezonanca, Department of Physiotherapy in Prishtina, Kosovo, during the period January-March 2017. Analyzed data were collected from year 2015-2016, including physiotherapeutic reports of patients of both sexes, Lasegue's test and improvement of the patients after 10 sessions of physical therapy treatment.

Total number of patients included in the study was 32 with chronic nonspecific low back pain, age 17-75. These patients were treated with physical therapy. Physiotherapeutic reports were selected randomly and included in the study by analyzing the physical examination, lasegue's test and subjective evaluation after treatment regarding general condition and pain. The



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evaluation was done by physical therapist after 10 treatment sessions and the patients reported that after treatment they feel total improvement, some improvement and no improvement regarding pain and function.

Ethical clearance

The study was approved by Ethical Board of Diagnostic Therapeutic Center “Rezonanca” Prishtina, Kosovo nr. 24\14.

Treatment protocol of physical therapy

All patients were treated individually by their physical therapist. They were treated with Transcutan electrical nerve stimulation (TENS) 15-20 min in painful points on the lumbar region muscles, hot packs 15 min. Also deep transverse massage was applied 15-20 min, passive mobilization of lumbar vertebrae, stretching and strengthening of abdominal and back extensors.

The main criteria for inclusion in the research was chronic non-specific low back pain with a duration of more than 6 months. We have excluded patients with other pathologies like hypertension, diabetes, pregnancy ect.

Presentation of data will be done through tables. Statistical parameters would be calculated: arithmetic mean, standard deviation, and minimum and maximum values. While for parametric data, t-test will be used. Verification of tests for the degree of reliability should be 95% and 99%, respectively $p < 0.05$ and $p < 0.01$.

Results

Total number of patients included in the study was 32 with chronic nonspecific low back pain, higher frequency of age belonged to 40-49 (34.38%) while the lower frequency belonged to age group 0-19 (3.13%), regarding the sex, female patients showed with higher frequency (Table 1).

Table 1. Patients included in the study regarding age and sex

Age	Female		Male		Total	
	N	%	N	%	N	%
10 - 19	1	5.88	0	0	1	3.13
20 - 29	0	0	0	0	0	0
30 - 39	4	23.53	5	33.33	9	28.13
40 - 49	7	41.18	4	26.67	11	34.38
50 - 59	2	11.76	3	20	5	15.63
60+	3	17.65	3	20	6	18.75
Total	N	17	15	100	32	100
	%	53.1	46.9		100	

The total average of age (Table 2) of all participant included in the study was age 46.59 with (SD±12.42). Regarding the gender, the average of age in all female participants was

45.29 (DS±12.35 age) while males were slightly older aged 48.07 (SD±12.77 years). With t-test, we found statistically significant difference regarding gender ($t=1.699$, $p < 0.05$).

Table 2. Statistical data of parameters of age by sex

	Female	Male	Total
N	17	15	32
Mean	45.29	48.07	46.59
SD	12.35	12.77	12.42
Min	17	31	17
Max	65	73	73

t-test, p- value, $t=1.699$, $p < 0.05$

Before treatment Lasegue test was positive at 19 patients, or (59.4%) of all patients, while negative test was seen only in 13 patients or (40.6%) of all patients (Table 3). In all

of our patients, with t-test, we found statistically significant difference regarding the presence of a positive Lasegue’s test ($t=12.70$, $p < 0.05$).

Table 3. Values of Lasegue’s test before treatment by sex

Lasegue’s test	Female		Male		Total	
	N	%	N	%	N	%
Positiv	8	47.1	11	73	19	59.4
Negativ	9	52.9	4	27	13	40.6
Total	17	100	15	100	32	100

t-test, p-value, $t = 12.70$, $p < 0.05$

The evaluation of patients after physical therapy treatment showed improvement in 18 patients, while relative improvement reported 10 patients and only 4 of them reported no improvement at all. Regarding our results in all of our patients with t-test, we found statistically significant di-

fference regarding the general condition of improvement of patient after physical therapy ($t=2.004$, $p < 0.05$). Relation of general improvement after treatment with positive Lasegue’s test was more related with group of patients who reported total improvement in 12 patients or 66.7% (Table 4).

Table 4. The evaluation of patients after treatment and correlation with Lasegue's test

Lasegue's test	After tretment						Total	
	Improvement		Relativ improvement		No improvement		N	%
	1	%	2	%	3	%		
Positiv	12	66.7	5	50	2	50	19	59.4
Negativ	6	33.3	5	50	2	50	13	40.6
Total	18	100	10	100	4	100	32	100

t-test, p-value, t = 2.004, p<0.05

Discussion

Low back pain is a major health problem in modern society. The condition has a high prevalence in many countries around the world (Zheng et al., 2012). In this study were included 32 patients with low back pain, they were treated with physiotherapeutic modalities and exercises. From the overall patients our results showed with higher frequency the age group 40-49 years old while regarding the gender higher frequency belonged to female group, same data reported also other authors (Y.X.J. Wang, J.Q. Wang, & Kaplar, 2016), according they systematic review of 98 researches they concluded that female subjects were with higher prevalence in all age groups, while the highest prevalence of subjects with low back pain showed to be in middle age group.

Regarding the use of modalities like TENS, ultrasound, thermotherapy according the literature they showed to have a positive effect in general improvement for patients with low back pain, in our research these modalities also had a positive impact in patients, similar data reported also other authors (Deyo, Walsh, Martin, Schoenfeld, & Ramamurthy, 1990), they reported that application of modalities like TENS in combination with exercises in patients with low back pain resulted to be very effective in pain management and improvement in daily life activities.

According our results from all 32 patients with low back pain, the evaluation of patients after physical therapy treatment showed improvement in 18 patients, while relative improvement reported 10 patients and only 4 of them reported no improvement at all. Regarding our results in all of our patients with t-test, we found statistically significant difference regarding the general condition of improvement of patient after physical therapy treatment. From these results we can conclude that beside the role of physiotherapeutic modalities a crucial role in general management of patients with LBP is also deep transverse massage, exercises for strength and stabilization of muscles in lumbar region and trunk.

There is a strong evidence about the effectiveness of therapeutic exercises for patients with LBP, some authors reported that therapeutic exercises are very effective for back flexibility, pain management and improvement of ability in daily life activities (Hayden, Tulder, & Tomlinson, 2005) (Garcia et al., 2013; Dunsford, Kumar, & Clarke, 2011; Kamali, Panahi, Ebrahimi, & Abbasi, 2014).

According our survey we can conclude that is strong evidence about the effectiveness of deep tissue massage for patients with low back pain regarding the pain and mobility, although the evidence showed that is very little confidence that massage is an effective treatment for chronic LBP (Farber & Wieland, 2016). But when massage is combined with therapeutic exercises and modalities showed to be very effective treatment for patients with chronic LBP (Bervoets, Lujisterburg, Alessie, & Bujis, 2015; Cherkin et al., 2011).

Regarding our results we can conclude that therapeutic exercises, modalities and deep transverse tissue massage are an efficient treatment protocol for patients with chronic low back pain in reducing pain and general improvement. We recomend long term surveys with control goupes and comparing with other techniques to confirm the effectiveness of treatments protocols for partients with chronic low back pain.

Our recommendation consists of educating patients regarding posture in everyday life activities, the important role of physical therapy, and the irreplaceable role of therapeutic exercises for chronic low back pain.

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Conflict of Interest

The authors declare that there are no conflicts of interest.

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