

KABAT METHOD VERSUS WILLIAMS METHOD IN CONSERVATIVE TREATMENT OF PATIENTS SUFFERING FROM LOW BACK PAIN

Anca Raluca DINU^{1,2}, Mihai Alexandru SĂNDESC^{2,3} and Elena AMARICAI²

¹ Clinic of Rehabilitation, Physical Medicine, Balneology, Municipal Emergency Hospital, Timișoara, Romania

² "Victor Babes" University of Medicine and Pharmacy, Timișoara, Romania

³ County Emergency Hospital "Pius Brinzeu", Department of Orthopaedic II Timișoara, Romania

Corresponding author: Anca Raluca DINU, E-mail ankadinu88@gmail.com

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Low back pain is the most frequent musculoskeletal medical complaint that affects patients of all categories and age groups. It represents the most common cause of activity limitation in patients less than 45 years. The aim of this study was to point out the importance of Kabat method which is characteristic for neurological pathology, but can be also used in the kinetic treatment of discopathies of lower lumbar spine. The study was performed on 44 patients diagnosed with discopathies of lower lumbar spine, who were divided into two groups. Group 1 comprised 22 patients that followed a rehabilitation treatment made of Williams programme. Group 2 comprised 22 patients that followed a combined kinetotherapy programme (Williams exercises and elements belonging to Kabat method). All patients were assessed at the beginning of the study and after one month of rehabilitation treatment. The conclusion of the study was that successful rehabilitation should include a functional approach designed to meet the specific individual needs of patients. There is no specific method of treating and completely curing the low back pain, but there are available multiple physical and medical approaches can will help the patient to feel better.

Keywords: low back pain, rehabilitation, Kabat method, Williams method, assessment

INTRODUCTION

Lumbar pain syndrome or lumbar radiculopathy known as low back pain represents the most frequent musculoskeletal medical complaint which causes activity limitation in patients younger than 45 years¹. This pathology is a major public health problem. Due to high morbidity and absenteeism has social implications² and secondary disability³.

A major role in the treatment of low back pain is played by the physical exercises. These exercises should be adapted to the rehabilitation phase (acute, subacute and chronic). Most studies are related to Williams programme, which is considered to be a classic method in the rehabilitation of lumbar discopathy.

The aim of this study was to point out the importance of Kabat method in the treatment of lumbar pain syndrome. This is method specific for neurological pathology, but elements from Kabat programme can be applied in low back pain treatment. For example, some specific elements of this programme, such as flexion and extension diagonals of the upper and lower extremities, trunk diagonals can be combined with elements from Williams programme.

MATERIAL AND METHODS

We studied 44 patients diagnosed with discopathies of lower lumbar spine assessed between January 2014 and January 2015. All of the patients needed imagistic investigations (IMR of lumbosacral spine) and none of them had the indication of a surgical treatment. Inclusion criteria were acute low back pain (symptoms duration under 6 weeks) or subacute low back pain (symptoms duration between 6 and 12 weeks), without irritative neurological deficits.

All patients followed a rehabilitation conservative treatment consisting in physical exercise. The programme was performed at CardinalMed private practice in Timisoara. The patients were divided into two groups. Group 1 consisted in 22 patients that followed a rehabilitation treatment consisting in Williams programme. Group 2 consisted in 22 patients that followed combined programmes (Williams exercises and elements belonging to Kabat method). At the beginning, both study groups performed the physical therapy daily, 5 times per week, for a two week period. Afterwards, they performed the rehabilitation 3 times per week, for the next four weeks.

The baseline clinical characteristics of the study patients are presented in table 1.

Characteristic	Group 1 (n=22)	Group 2 (n=22)	P value
Age(years) (mean±SD)	27-73 (49.5±2.8)	28-69 (43.7 ± 4.7)	0.34
Gender Women (n%) Men(n%)	11(50%) 11(50%)	10(45.4%) 12(54.6%)	0.72
Physical activity Low (n%) Mild (n%) High (n%) Unemployed Retired	3(13.6%) 8(36.3%) 7(31.8%) 1(4.7%) 3(13.6%)	3(13.6%) 9(41%) 7(31.8%) 0 3(13.6%)	
Level of lumbar discopathy L3-L4 L4-L5 L5-S1 L4-L5 and L5-S1	2(9%) 6(27.2%) 10(45.4%) 4(18.4%)	1(4.7%) 6(27.2%) 12(54.5%) 3(13.6%)	

SD-standard deviation; n-number of patients.

Table 1. Baseline clinical characteristics of study patients

The main goal in the Williams programme is to regain lower trunk mobility. This program has three phases. In the acute phase in low back pain⁴ are very important the flexion exercises. These exercises are effective by stretching hip flexors and lumbar extensors, strengthening glutei and abdominals (Figure 1 and 2), decreasing the compressive load to posterior disc and opening the intervertebral foramen.

Kabat method is used in the acute phase of lumbar discopathy for obtaining the relaxation of inferior lumbar muscles. Hold-Relax proprioceptive neuromuscular facilitation exercises are also used. The contraction is followed by the relaxation of the activated muscles.

The final positions of Kabat diagonals for extremities are considered in order to influence trunk muscles. The upper extremities diagonals influence the upper abdominal musculature and the upper trunk extensor musculature. The lower extremities diagonals influence the lower abdominal musculature and the lower trunk musculature⁵⁻⁷ (Figure 3 and 4).

In the subacute phase of a lumbar discopathy, the relaxation of the contracture musculature is also taken into account in order to allow the trunk a free mobilization using an increased isometric resistance in the Hold-Relax Kabat schemes described above. Gradually, there will be performed exercises on the entire Kabat diagonal (isotonic contraction) by using a minimal resistance on the whole diagonal route. During this phase, Kabat schemes for stretching the hip flexors, as well as trunk schemes of chopping and lifting are recommended. Groups were assessed at the beginning of the study and after 6 weeks of rehabilitation. Lumbar pain was evaluated using 10 cm VAS (Visual Analogue Scale)

score. In this scale, “0” described a condition with no pain, and “10” describes the worst pain imaginable.



Figure 1-2. Williams programme exercises (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)



Figure 3-4. Kabat exercises for lower extremities

Back-related functional disability was measured by the Oswestry Disability Index (ODI), which is a 10-item scale ranging from 0 to 100%. A high score indicates a high degree of restriction. ODI evaluates the following sections: pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sex life, social life and travelling⁸. Work status was quantified by the percentage of professional activity reported by patients and was recorded at baseline and at the final assessment. Values were categorized as off work (work status <20%), part time (20%≤work status<100%) or full time working (work status=100%) (9).

All statistical analyses were done using GraphPad Prism 6.0 for Windows. The inter group comparison of the improvement (differences of pre–post values) between groups was evaluated within dependent sample t-test. The intragroup data were compared with the paired t-test. A P value of less than 0.05 was considered as statistically significant.

RESULTS AND DISCUSSIONS

Between the two studied groups there were no significant differences regarding age, gender, occupation and diagnosis. In table 2 are shown the results of the study after the rehabilitation conservative treatment. In the two groups there were no significant differences at baseline in all the assessed parameter. Significant improvement was observed in VAS score, in group 2 after one month of combined kinetotherapy programmes. This study took into consideration the patients' follow-up in the same group. At the end of the study, in both groups, the work status increased favourably. Several patients returned to work, but very few could not work full time after physical therapy. Patients who followed the classic Williams programme had better results in VAS and disability scores, while those who followed associated physical exercises provided significant differences in all the assessed categories. The difference between groups was not significant either at the baseline or at the final assessment.

Assessment	Group 1 (n=22) Mean \pm SD	Group 2 (n=22) Mean \pm SD	P value
VAS			
Baseline	81.3 \pm 24.9	80.1 \pm 22.3	0.74
6 weeks	62.1 \pm 12.4 **	57.7 \pm 15.5 **	0.033
ODI (%)			
Baseline	41.7 \pm 13.9	36.7 \pm 15.8	0.071
6 weeks	35.4 \pm 11.2 **	26.8 \pm 12.9 **	0.001
Work status			
Baseline:			
Off work	9 (40%)	8 (36%)	
Part time	10(45%)	11(50%)	
Full time	3 (13%)	3 (13%)	
6 weeks:			
Off work	4 (18%)	2(9%)	
Part time	13(59%)	12(54%)	
Full time	5 (22%)	8(36%)	

SD: standard deviation; VAS: Visual Analog Scale; ODI: Oswestry Disability Index; n: number of patients; * independent samples t-test; ** significant within group difference compared to baseline (paired samples t-test).

Table 2. Outcomes at baseline and after the rehabilitation programme in the study patients

The Kabat method can be used in the conservative treatment of lumbar discopathies with very good results, as this method is also adapted for different musculoskeletal disorders as the proprioceptive neuromuscular facilitation helps obtain better functional outcome. The Williams programme is a classic and important method used in the rehabilitation of low back pain with very good results. The combination of these two programmes, Williams and Kabat, has an important impact on patients' life, as it helps diminishing patients' complaints and improving their physical functioning and general health status. In a short period of time, none of the two methods does improve entirely the assessed parameters. Therefore, after one month rehabilitation in

patients with acute or subacute low back pain, lumbar pain can still be present. All patients still have moderate disability (21-40%), although results show a significant improvement in both study groups.

The study has some limitations. One of them is represented by the short period of follow-up (one month). Another limitation can be the fact that some of the patients received in the same time medical treatment (anti-inflammatory drugs or analgesics).

CONCLUSIONS

In order to obtain a successful rehabilitation treatment must include specific patients' individual needs. Therefore, the rehabilitation programme should be based on preventing pain and disability. Low back pain does not have a certain treatment that can cure completely the low back pain. However, there are available multiple physical and medical approaches that will help the patient to feel better.

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