

EFFECTIVENESS OF PHYSIOTHERAPY IN IMPROVING UNOPERATED HERNIATED DISC SYMPTOMS

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ABSTRACT

Objectives: The main objective of this research was to highlight the effects and influence of physiotherapy means used to improve herniated disc symptoms and to prevent possible degenerations.

Methods of research: The research methods were established according to the objectives of the research, as follows: the study of the professional literature method, the testing method, the statistical-mathematical method and the graphical representation method.

Results: The analysis of data showed that the use of physiotherapy means has led to an improvement of the herniated disc symptoms, further leading to a decrease in the disability and to a social and professional integration.

Conclusions: The results support the conclusion that the physiotherapy procedures positively influence the rehabilitation and the health of the subjects.

Key words: physiotherapy, symptom, hernia, improvement.

Introduction

The literature highlights that approximately 80% of the population suffered at least one lumbar pain episode throughout their lifetime, in 25% of them these episodes are recurrent and in 10% they are chronic. Pain that persists more than three months can lead to functional impotence disability and a psychological decay of the quality of life. Clinical and statistical observations emphasize that the pathology causing spine pain in general and lumbar pain in particular is number one among the cases of the rehabilitation services, nationally and internationally, (http://www.cnaa.md/files/theses/2019/55228/florentina_cristea_thesis.pdf, <https://www.cdt-babes.ro/articole/hernie-de-disc.php>).

Lumbar disc hernia is encountered more between the ages of 30 and 45, and the male/female ratio is 2/1. Subjects with chronic back pain present a higher frequency of emotional and functional deficits, such as depression, anxiety, sleep deficits and headaches. Various social demographic is associated to this frequency and to the effect of treatment in patients with back pain,

(https://rjmp.com.ro/articles/2013.3/PM_Nr_3_2013_Art-2.pdf). Patients with a higher level of education present a lower risk of back pain because

they have jobs that are less physically demanding.

Lumbar pain with a mechanical cause affects 70-85% of the population at least once in their lifetime. It is estimated that 1.3 million of days are lost in a year by United States employees by taking time off work because of back pain. This is the second major cause of absenteeism among employees, after respiratory disorders. Back pain is also a disorder that is more common in people younger than 40.

In the last years, a surprising link was discovered between smoking and back pain - smoking stops proper oxygenation of the spine, leading to its dehydration. According to several British studies, smokers are more predisposed to back pain than non-smokers. This tendency is true for men and women. British scientists questioned 13000 people about their lifestyles - including smoking, workplaces, activities, and pain history. After analyzing the complexity of work activities, and other factors that could cause lumbar pain, scientists concluded that smoking increases the risk for back pain by 30%. It was also observed that smoking makes people more vulnerable to neck pain, shoulder pain, elbow, hand, hip, and knee pain.

Thus, 70% of disc hernias are caused by exaggerated physical work; in about 95% of the cases, the hernia is in the lumbar area, and 50% of

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those are located in L4 and 40% in L5. G. Hirsch states that 65% of the Swedish population suffers from lumbar pain, in the USA there are 4 out of 5 people, while in the UK, there are 1.1 cases annually. A social inquiry in Algeria highlights a worldwide incidence of 90.9% that increases with age.

Methods

This research's prime objective was to highlight the clinical data, therapeutic effectiveness of the physiotherapy means in improving the specific herniated disc symptoms, and in preventing possible degenerations.

The general objectives aimed to establish the optimal physiotherapy means in the rehabilitation program applied in accordance to the patient's state and cooperation; to establish the indications and contraindications of physiotherapy in various stages of the herniated disc; to establish an optimal number of sessions to improve the patient's health.

This case study proposes the assessment of a patient with a herniated lumbar disc, performed at the Piatra Neamt KinetoTerapia center. The idea that started this research was the belief that if the patient lives a healthy lifestyle and performs a correct rehabilitation program using various physiotherapy and physical therapy methods, the herniated disc can be kept under control. The rehabilitation program was conducted in the physiotherapy room, which is equipped with various therapeutic means, and in the physical therapy room, where the exercises were performed (Mârza D., 2012, Zoltan P., 2011).

The study of the 28-year-old subject was conducted between January – February 2020, at the KinetoTerapia clinic in Piatra Neamt and at the subject's home.

The rehabilitation program for the unoperated herniated disc aimed to: manage pain; make the patient aware of his spine posture, thus improving it;

maintain or increase the joint mobility; correct the imbalances in the agonist and antagonist muscles.

In order to achieve these goals, the authors conducted the patient's anamnesis, subjective and objective clinical examination, and functional diagnosis. A series of pain assessment tests were applied, such as the Visual Analogue Scale (VAS), the Low Back Pain Disability Questionnaire of Roland and Morris - an instrument used to evaluate back pain in patients, to determine the level of disability; the Chronic Disability Index of Waddell and Main for Patients with Low Back Pain - used in patients with back pain or herniated disc, it is a simple scale for assessment of back pain, (http://89.32.227.76/_files/14507-PCN-Durerea%2520lombo%25C4%2583.pdf). As functional tests, the Lasegue, Schober, Macrae-Wright, Stibor and Tomayer tests were used, (Balint T., 2007).

As specific intervention means, physiotherapy elements were used, mainly an ensemble of procedures used both to alleviate pain and eliminate contractions, and to faster regenerate the nerves and injured tissue; massage, used preventively and as a cure, with local and general effects, physical therapy or the physical activity plan comprising the exercises used to rehabilitate the herniated disc. (Kiss I., 2004, Rădulescu A., 2014)

The general intervention plan aimed to: alleviate pain and muscle contractions; alleviate joint stiffness; limit the spine injuries; help the subject re-adapt professionally.

Results

Table 1 highlights the initial and final values of the functional tests used to assess the mobility of the spine and of the lumbar spine in particular.

Table 1. Functional results, initial and final tests

FUNCTIONAL TESTS	INITIAL VALUES	FINAL VALUES
Lasegue test	positive	positive
Schober test	1 cm	3 cm
Macrae – Wright test	6 cm	7 cm
Stibor test	7.5 cm	9 cm
Tomayer test	-4.6	-3.2

Table 2 presents the initial and final values of the questionnaires regarding the patient's pain and disability caused by the herniated disc. These

questionnaires were recorded during an initial stage at the beginning of the rehabilitation session, and a final stage at the end of the session, when the patient improved his condition.

Table 2. Questionnaire results regarding pain and disability assessment

PAIN ASSESSMENT QUESTIONNAIRE	INITIAL VALUES	FINAL VALUES
VAS	6 - pain cannot be ignored, but the subject can go on with work or social activities	2 - occasional irritation, strong pain bouts
Low Back Pain Disability Questionnaire of Roland and Morris	15/24 - severely affected patient	5/24 - 66% improvement
Chronic Disability Index of Waddell and Main for Patients with Low Back Pain	7/9 - high level of disability	1/9 - low level of disability

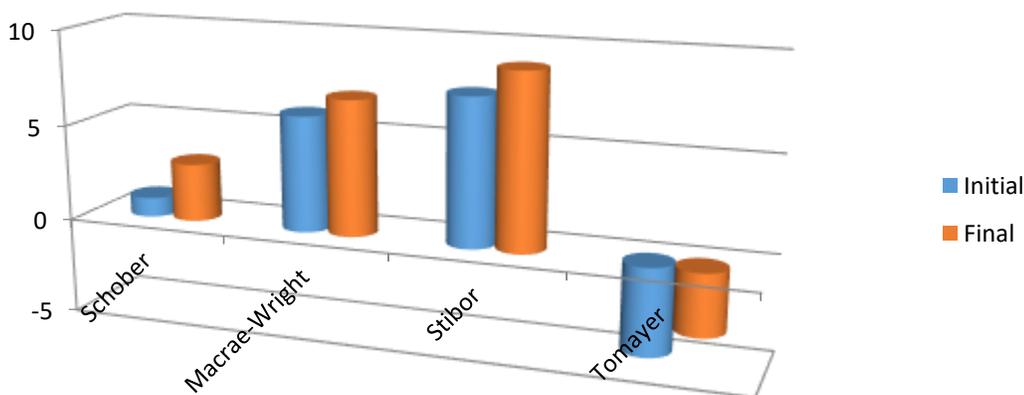


Figure 1. Functional tests regarding the dorsolumbar spine mobility - initial and final assessments

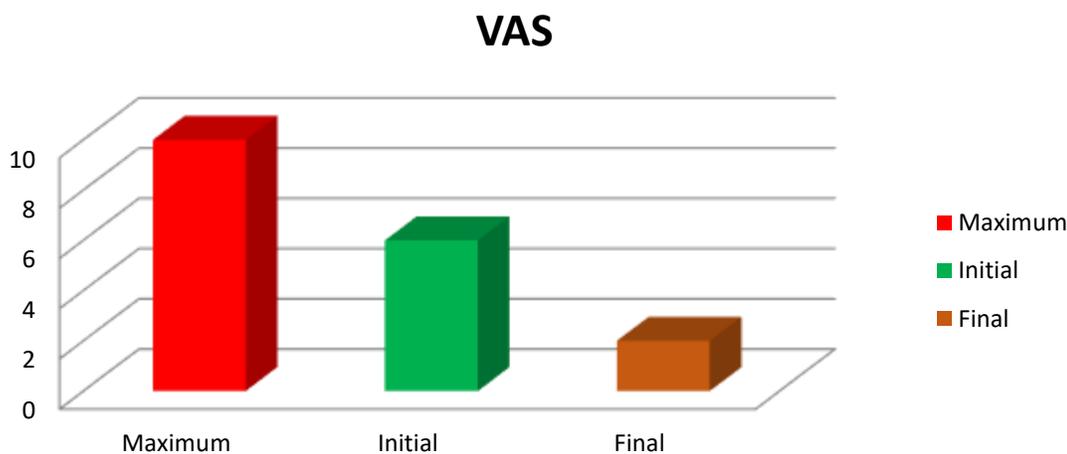


Figure 2. VAS progress

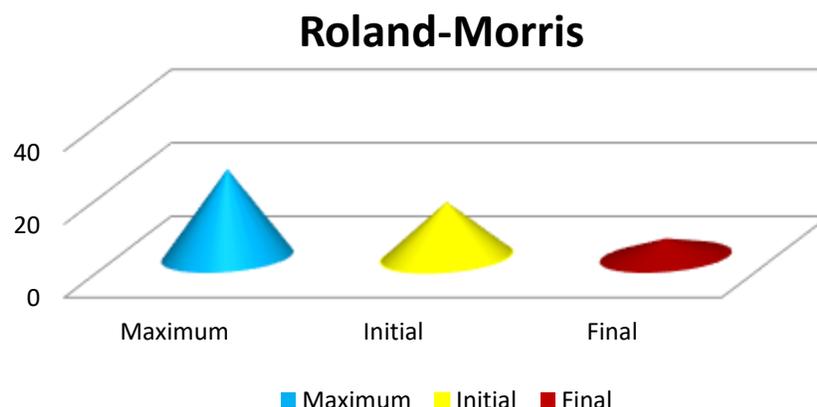


Figure 3. Roland-Morris Questionnaire disability score variation

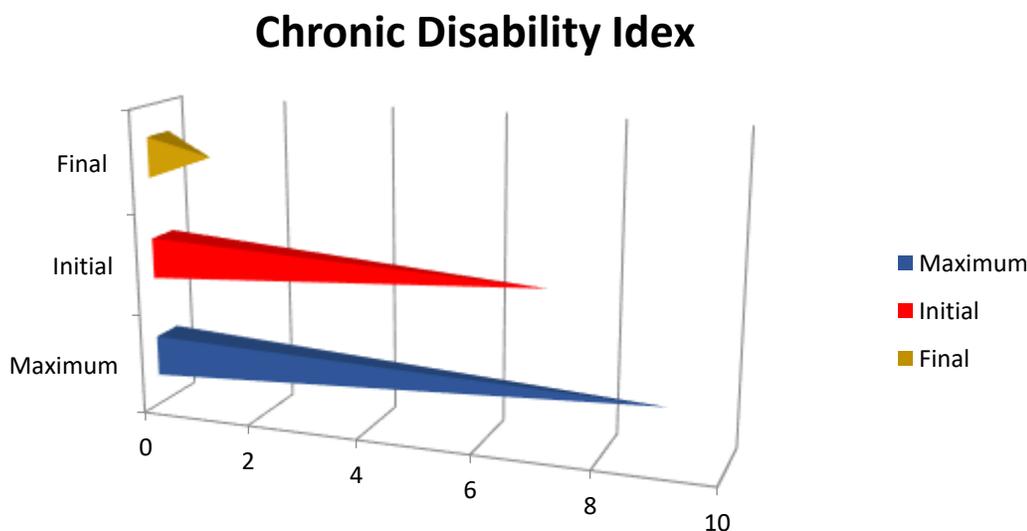


Figure 4. Chronic Disability Index of Waddell and Main score variation

The Chronic Disability Index of Waddell and Main score variation for patient Z.B. shows that initially, his affection generated a disability score of 7 out of 9; finally, the patient disability was reduced, recording a score of 1 out of 9.

Discussion

The study of the literature showed that a herniated disc occurs when some of the nucleus pushes out through a tear in the annulus. This condition can be prevented by being aware of the correct posture, avoiding lifting heavy weight or exaggerated physical effort.

The prevention of this disorder or avoiding aggravating it can be achieved through postural hygiene measures, essential during the first stage and during the later ones.

After applying the specific treatment, it was observed that the herniated disc can be kept under control without having to go through surgery. A major goal for a herniated disc patient is becoming aware and improving his spine posture, thus limiting his injuries and traumas that can cause the specific symptoms.

The subject's anamnesis, clinical examination and assessment showed that physiotherapy and physical

therapy program brought notable improvements, visible by comparing the initial and final values of the mobility tests for the lumbosacral spine and of the questionnaires evaluating the pain and disability caused by the condition.

It can be said that subject Z.B. had a positive progress at the end of the physiotherapy and physical therapy sessions in a controlled and monitored environment.

In regard to the lumbar spine mobility, where the herniated disc is located, there was a slight improvement, especially in flexion; the only test for which the patient recorded positive initial and final results was the Lasegue test, this being explained by the fact that the herniated disc was still present, because it was in an advanced state. The improvement was possible because of the patient's young age, the fact that he is not overweight, and because of an adequate treatment that was focused on the disorder. In regard to the VAS, the score was improved by 4 points, starting from a pain that could not be ignored and arriving, after a period of treatment, to a pain that is only occasionally present. The questionnaires used have emphasized a notable improvement from all points of view: for the Roland-Morris Questionnaire, the difference between the initial and final assessment was of 10 points, representing an improvement of 66%; for the Chronic Disability Index, the difference was of 6 points, the patient answering affirmatively at first to 7 questions, while at the end, he gave only one affirmative answer.

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