THE EFFICIENCY OF KINESIOTHERAPY IN THE REHABILITATION OF PATIENTS WITH LOW BACK PAIN

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Keywords: low back pain, physiotherapy, spine, pain, functional status

Abstract

Low back pain is a health issue that causes incapacity to work, affecting the economic area. I chose to study this theme due to the increasing frequency of this disease.

This study was organized in multiple phases: selecting the participant patients concerning their clinical particularities, the initial assessment of the patients, the establishment of the functional diagnosis, the targets of the treatment, the development of the therapeutical program, and the final assessments.

In the study there were two groups: the constrol group, that benefited from pharmaceutical and electrotherapeutical treatment, and the study group, that beside the medication and electrotherapy, also benefited from kinesiotherapy.

After the initial and final assessments, the values were compared using graphics method, registering improved results for study group, that benefited of kinesiotherapy. The pain decreased considerably, the quality of life increased significantly for study group, the range of motion also increased more for study group than for control group, and so did the muscular strenght.

In conclusion, kinesiotherapy is an auxiliary method for pharmaceutical and electroherapeutical treatment. It is not an independent method of treatment, but it has a major contribution to faster socio-professional reintegration of the patient and increases the quality of life.

Introduction

Low back pain or pain in the lumbar region and in the topographic regions innervated by the sciatic nerve can be a complication of a rheumatic disease, an infection affecting the sciatic nerve, a compression caused by a tumor or, more commonly, a disc herniation between two vertebrae (L4 - L5 or L5 - S1). It appears, according to statistical data from the literature, in adults between 25-50 years old and especially after the age of 40, being more common in men than in women. It is a common cause for incapacity to work with important economic consequences.

Research in medical recovery is developing, as in recent years modern methods of treatment have been implemented in order to achieve the proposed goal as quickly and efficiently as possible. In order to regain the possibility of self-care as soon as possible, the methods and techniques used in physiotherapy have a wide addressability for patients with lumbosacralgia. Both movement therapy and physical factor therapy have been shown to be extremely beneficial in recovering the lost function of a segment, or in recovering a partially affected segment.

Thus recognizing the importance of physiokinetotherapy, treatment strategies today include rehabilitation programs through physical therapy and physical factor therapy, with the primary goal of recovering the possibility of self-care and reintegration into the social life of patients.

The spine contributes, in an essential way, to the ability of the musculoskeletal system to move. It has 23 intervertebral discs, 365 ligaments and 730 insertion points.

Low back pain is a deep somatic pain, of two types: lumbosacralgia (located in the lumbosacral region) and lumbosciatica (pain irradiated along the lower limbs along the path of the sciatic nerve).

The etiopathogenesis of lumbosciatalgia is diverse: static disorders of the spine, disorders of the lumbar spine such as degenerative, inflammatory, traumatic, metabolic or neoplastic processes.

Degenerative lesions of the intervertebral discs (dysarthrosis), without rupture of the fibrous ring and without herniation of the nucleus pulposus is a mechanical lumbosacralgia (pain worsens after exertion).

Materials and methods

The study was performed on a total of 40 patients, selected based on clinical and paraclinical criteria. There were 17 female patients and 23 male patients aged between 18 and 55 years old (Table 1 and Chart 1).

The socio-professional backgrounds were varied, 8 student patients and 32 employees, of which 18 construction workers, 7 professional drivers, 4 patients work in the office, and 3 performance athletes.

Table 1. – Distribution of patients by age and sex.

GROUPS 40 PATIENTS	SEX	AGE GROUPS		
		18 – 25 years old	26 – 40 years old	41 – 55 years old
CONTROL 20 PATIENTS	FEMALE	1	3	4
	MALE	2	5	5
STUDY 20 PATIENTS	FEMALE	2	2	5
	MALE	3	5	3

The study took place between May 2019 - July 2019, and consists of the following stages:

1. consultation of specialized materials and theoretical documentation on existing studies and pathology studied;
2. selection of patients based on the criteria imposed by clinical and paraclinical manifestations and functional diagnosis, in order to enroll in the study. Patients were informed and gave their consent to collaborate and participate in the study.
3. application of evaluation and exploration methods, to compare the progress of the two groups and verify the effectiveness of the study.
4. application of the physical methods chosen in the rehabilitation program.
5. processing and interpreting the results obtained during the study, presenting the conclusions and writing the paper.

Initial and final measurements were performed to compare the results and evaluate the effectiveness of the physiotherapy program.

Based on the initial measurements, a functional recovery program was developed, progress was monitored during the treatments, all data obtained were quantified and interpreted at the end.

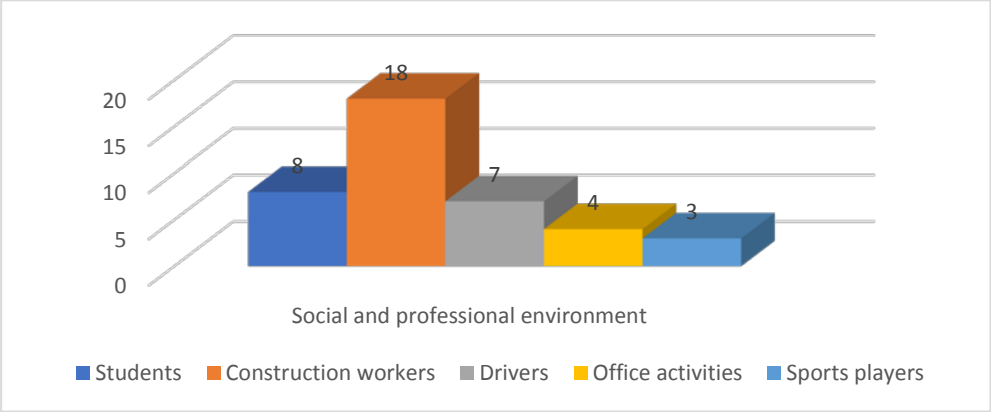

Chart 1. – Distribution of patients by socio-professional categories of origin.

The evaluations included joint amplitude in the lumbar spine, by the goniometric method, the finger-ground index and the Schober test, muscle strength for flexion and extension by manual testing of muscle strength, quoted by Tudor Sbenghe in "Prophylactic, therapeutic and recovery kinetology" (1987), pain through the VAS scale, and assessment of quality of life through the LBP-module and WOMAC questionnaires.

Based on the clinical diagnosis established by the specialist, and the initial evaluations performed that highlighted the functional issue of the patients, the objectives of the physiokinetotherapeutic program were established. The professional activity, age, level of effort tolerance and anatomo-functional peculiarities of the patients were taken into account.

The objectives of the physiokinetotherapeutic program were:
- pain relief, for the possibility of carrying out daily activities (ADL);
- decrease of inflammation;
- increase of joint amplitude in the lumbar spine;
- increasing muscle strength and improving circulation locally;
- correction of vicious attitudes of the body appeared due to analgesic attitudes;
- improving stability by restoring muscle control;
- maintaining the functionality as close as possible to the optimal one for the joints of the entire spine;

- health education of patients on the rules of prophylaxis;
- toning the back muscles and significantly increasing the quality of life.

The medical recovery program took place over a period of 20 days, being the same for each patient on electrotherapy, massage therapy and medication, except for the physical therapy treatment that benefited only the study group. The intensity of the applied procedures varied depending on the physiological limits and the sensitivity of each patient.

Among the physical methods, the recovery program included electrotherapy, massage therapy, and physical therapy.

Electrotherapeutic treatment consisted of galvanic current (direct current), for analgesic, vasodilator, trophic, and neuro-muscular stimulation effects; interference current (medium frequency), which consists in the crossing of two medium frequency currents with different frequencies, having as main effects the excitomotor one on the striated muscles, decontracting, vasculo-trophic, and analgesic by decreasing the painful excitability; transcutaneous electrical nerve stimulation (TENS), which uses low frequency rectangular currents, used mainly for the analgesic effect.

The kinetotherapeutic program was composed of: corrective posture (akinetic techniques), isometric contraction (static kinetic techniques), voluntary active movement with and without resistance (dynamic kinetic techniques), neuroproprioceptive facilitation techniques: Kabat for torso, progression with resistance; Therapeutic exercise: Williams program (phases I and II), to increase muscle strength and normal muscle tone.

Massage has been used to relieve pain, eliminate contractures, increase joint mobility, and increase muscle tone.

Among the procedures used were the following main masotherapeutic procedures: smoothing, to improve blood and lymph circulation at the surface; friction, to reduce painful sensitivity and improve contracts; kneading, to stimulate tissue activity and increase muscle elasticity; vibrations, with muscle relaxant effect.

Results and discussions

For the interpretation of the results we used the graphic method, to highlight the results obtained after the application of the physiokinetotherapeutic program.

The graphs were made after comparing and highlighting the statistical significance through the median, standard deviation and student test. The compared values are obtained from the initial and final evaluations, comparing the median for each parameter measured in the control group and in the study group. The final values of the two lots were also compared.

According to the results, there was a significant improvement in joint balance in the spine. After the recovery program, the patients noticed an improvement in the mobility of the spine, recovering their functional capacity. Muscle tone and muscle strength have reached the optimal level for the possibility of daily activities (ADL).

The study shows the importance of physical therapy in recovering the functional deficit of the lumbar spine caused by lumbosciatalgia. Following this treatment, patients were successfully reintegrated into socio-professional activity, and the quality of life of patients involved in this study increased considerably.

The limitations of the study and the work are: the small number of participating patients, the short duration of the study, the physical limitations of some patients to perform the exercises in kinetic treatment, the reduced possibility of supervising patients in compliance with the instructions for performing exercises at home and administration of medication.

Graph 2 shows the balance of muscle strength for flexion and extension movements of the lumbar spine where there is a significant increase in muscle strength for the group that received physical therapy, compared to the control group, which received only pharmaceutical treatment and electrotherapy, shows the initial values and finals of the VAS scale, both for the control group and for the study group. While for the control group the final value of the VAS scale was 4, for the study group it was 0, highlighting the significant difference between the two groups and highlighting the difference

between the initial and final values of the two groups obtained in the WOMAC quality of life questionnaire. The values of the study group are significantly improved compared to those of the control group, which did not benefit from kinetotherapeutic treatment.

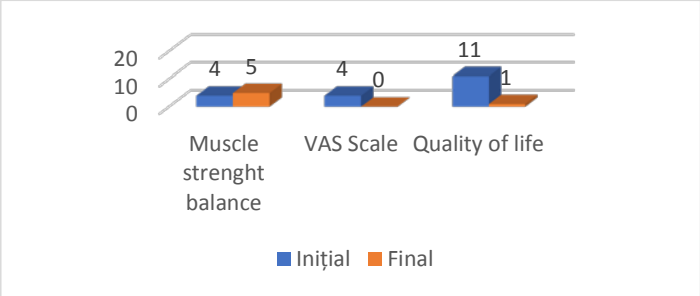

Chart 2. – Muscle strength balance, VAS scale, quality of life.

Graph 3 illustrates the difference between the values of the functionality index assessed by means of the LBP-module questionnaire, a difference that attests to the efficiency of physiotherapy, because the values of the study group, which benefited from this treatment, are much better than those of the control group: articular balance for the flexion movement of the lumbar spine, where an increase of the final values for the study group is observed, compared to the control group, which did not receive kinetotherapeutic treatment and the initial and final tests, compared to groups, of the Lassegue test. In the case of the study group the values are better than in the case of the control group.

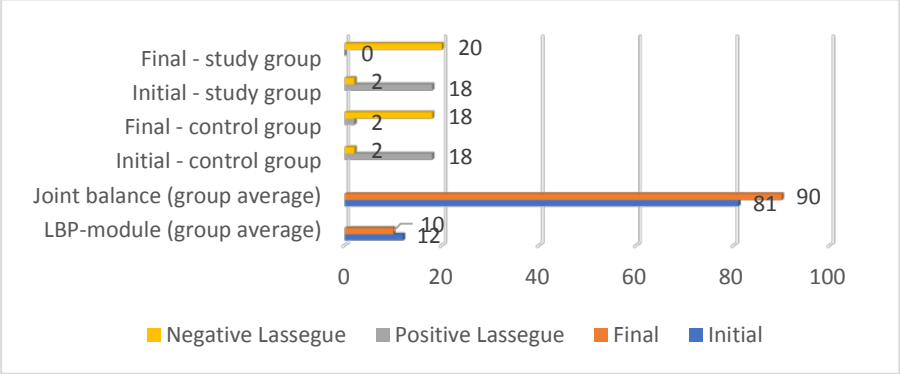

Chart 3. – Lassegue test, joint balance, LBP-module scale.

Conclusions

The physiokinetotherapeutic treatment developed at the beginning of the study has the role of ameliorating the symptoms present in lumbosacralgia, ameliorating and correcting the functional deficit caused by this pathology, such as limiting the range of motion, or low muscle strength.

This type of treatment has both short-term and long-term results, reducing the possibility of recurrence of symptoms experienced by patients. Its effect strengthens and enhances the effects of the pharmacological treatment administered.

The results of the rehabilitation treatment were pain relief, decreased inflammation, increased joint balance values for flexion and extension movements of the lumbar spine, increased muscle tone and muscle strength, and improved quality of life.

Physical therapy is a beneficial treatment of choice in the recovery of this pathology, because, in addition to the recovery of the functional residue and the improvement of symptoms, beneficial effects have been observed in the mental sphere of patients.

Following the kinetic treatment applied to patients with lumbosciatalgia, they were able to resume their socio-professional activity

earlier than the patients in the control group, thus, physiotherapy demonstrates its effectiveness in the socio-professional reintegration of patients.

The kinetotherapeutic treatment applied as early as possible to patients with lumbar spine diseases, in addition to the objectives achieved, also contributed to the strengthening of sanitary trophic functions.

Physiotherapy in patients with lumbosciatalgia, effectively applied and under the strict guidance of specialists, prevents the deconditioning of the cardio-respiratory system, patients who, due to the disease, can not perform recreational or healthy-trophic activities.

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EFICIENȚA KINETOTERAPIEI ÎN RECUPERAREA PACIENȚILOR CU LOMBOSCIATALGIE

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Cuvinte cheie: lombosciatalgie, fiziokinetoterapie, coloanal vertebrala, durere, status funcțional

Abstract:

Lombosciatalgia este o afecțiune care cauzează inacapcitate de muncă cu consecințe economice. Am ales să studiez această temă datorită frecvenței în continuă creștere a acestei afecțiuni.

Acest studiu a fost organizat pe mai multe etape: selectarea pacienților pe baza criteriilor clinice și paraclinice, evaluarea pacienților, stabilirea diagnosticului funcțional, obiectivele tratamentului, alcătuirea programului terapeutic, și evaluările finale.

Studiul a cuprins două loturi, unul martor, care a beneficiat de tratament medicamentos și electroterapeutic, și unul studiu, care pe lângă medicamentație și electroterapie, a beneficiat și de kinetoterapie.

În urma evaluărilor inițiale și finale, valorile obținute au fost comparate prin intermediul metodei grafice, înregistrându-se rezultate mai bune la lotul studiu, care a beneficiat și de kinetoterapie. Durerea a scăzut considerabil, calitatea vieții a crescut semnificativ pentru cei care au primit și kinetoterapie, amplitudinea articulară a crescut mai mult la lotul studiu decât la lotul martor, de asemenea și forța și tonusul muscular.

În concluzie, kinetoterapia este o metodă auxiliară trtatamentului medicamentos și electroterapeutic. Aceasta nu este un tratament independent, dar contribuie semnificativ la reintegrarea socio-profesională mai rapidă a pacientului și crește calitatea vieții acestuia.