### TREATMENT WITH PHYSICAL THERAPY AND MODALITIES IN CASES WITH HERNIATED DISC

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**Abstract:** In this study we have treated the issue of Herniated Disc (HD) that is part of the group of degenerative spinal cord diseases that are quite common. HD is a muscusceletal disorder responsible for sciatica and occurs due to rupture of the annulus fibrosis, following the displacement of the central mass of the intervertebral disc into the dorsal disc spaces. The age of the effected population is average about 30 to 50 years, with percentage of male and female in average but that depends on many factors such as working environment, weight, physical activity, smoking, etc. Treatment of this pathology we did with physical therapy modalities. Patient that were treated achieved excellent results from a severe condition such as HD, managed to be back at work without functional obstacles. This study presents the connection between patient and physical therapist in achieving desirable results.

**Material and methods:** an anonymous inquiry was conducted after examination of 100 patients in our clinics in Ferizaj and Pristina. Patients that came were with diagnoses and some of them we have diagnosed too, with typical HD. Also the patients received second questionnaire to verify their after treatment improvement.

**Results and discussion:** Results achieved in this study were remarkable. From 100 patients that we had in study, 90 had max results, 6 had average results and 4 of them left treatment. It was proven that electrotherapy, sonotherapy, Tecartherapy, exerciser, osteopathy, light analgesics and home education such as exercise and right posture are crucial for achieving results.

Keywords: physical therapy, treatment, rehabilitation, patient.

#### INTRODUCTION

- Herniated Disc (HD) is part of the group of degenerative spinal cord diseases that are quite common. HD is a muscusceletal disorder responsible for sciatica and occurs due to rupture of the annulus fibrosis, following the displacement of the central mass of the intervertebral disc into the dorsal disc spaces. The age of the effected population is average about 30 to 50 years, with percentage of male and female in average but that depends on many factors such as working environment, weight, physical activity, smoking, etc. This process evolves especially in those areas where a mobile part of the spine passes to the less mobile or fully immobile part of the spinal cord.
- These areas are in the lumbar section between L4-L5 and L5-S1, therefore as such the degenerative process of the spinal cord is not a disease, but in some cases it is defined as a disease.
- Lumbar syndrome implies the pain and other complications in the lumbar region or in the hips. The disease can manifest itself as lumbago, where pain is located only in the lumbar regions. Lumbosacralgia where pain spreads also in the sacral region. Lumboischialgia where pain spreads along the sides of a leg or both legs.
- ▶ HD is a pathology when compressing or pressure in the disk between two vertebras with each other occurs. Also other complications as vertebras shifting and osteoporosis might occur.
- There are many etiologic factors but in 90% of the cases the degenerative process of intervertebral disk between the L4-L5 and L5-S1 is the cause.

#### ANATOMY AND BIOMECHANICS OF THE SPINAL CORD

- The spinal cord is the system of joining the vertebras with each other where the cord altogether is formed and consisting from 33 to 34 vertebras divided into certain segments and areas.
- Anatomy, features, function, motion amplitude and size of the vertebras vary in each segment or part of the spinal cord.
- Based on the area or segment the spinal cord is divided into:

- Cervical Part (pars cervicalis)
- - Thoracic Part (pars thoracalis)
- - Lumbar Part (pars lumbalis)
- Sacral Part (pars sacralis)

### Spinal cord functions

- The spinal cord has three functions:
- **<u>Protective</u>** protects the bone marrow and also very important organs that are attached to it such as esophagus, aorta, heart etc.
- <u>Supportive</u> serves as a support for the body and pelvis during the walk and also during the vertical standing.
- <u>Moving</u> it takes part in the movement of the body and the head. The movements are carried out in three planes and axis of the movements such as: frontal, sagittal and vertical.
- Around the frontal cord the column bends forward and backward (flexion extension), around the sagittal cord it performs lateral flexion to the right and to the left, around the vertical cord it performs the rotating movements.
- The most movable parts of the vertebral column are the neck and the waist, less movable is the thoracic part, while the sacrococcygeal part appears unmovable.
- Lumbar diseases are localized pains at the lower part of the back, in the lumbar region, where they are more common, because the "pars lumbar" of the vertebral column is the most movable part of the spinal cord and considering the volume of L5-S1, they are bigger in structure, and in weight load in spine. Due to this degeneration inside the disc itself are common in this area.

#### <u>Lumbago</u>

- Lumbago deserves a more accurate diagnosis and requires more dedication for the patients with this pain, because pain is high and it affects most of the soft tissues and such as muscles, joints and inner organs, since it is with diverse etiologies and it may also be malignant, infectious or mechanical disease of the vertebral column.
- Lumbago may be common (bilateral) or unique (unilateral)

The definition of the French rheumatology association for lumbago is this: the pain located in the lumbar-sacral part, at the height of the iliac crest or even lower, middle or the lateral, with the possibility of spreading, but never over the knee. This pain dominates the lumbar-sacral part of the vertebral column, at least for three months, almost every day, no likely improvement "

- HD Categorization
- Depending on the cause, the lumbar diseases can be divided into 3 groups:

#### **<u>1 Mechanical/Functional</u>**

- Under this condition we refer to discopathy, which is a prolapse or an intervertebral disc hernia. Males from 30 to 50 years are the most affected persons.

#### 2 Postural

- It has to do with improper moves or positions, often caused by chairs, armchairs, very soft beds, wrong habits such as: high heels, staying for a long time in the same posture (sitting or standing), inadequate working conditions, wrong moves, such as inappropriate weights lifting.

### 3- Psychological

- The back is one of the parts most affected by pain distress, accompanied by both psychological factors and physical conditions. If there is no physical distress, then the pain diagnosis is associated to stress factors of a psycho-social nature. With such a diagnosis, patients often for their symptoms are figuratively expressed as: "It feels like I've been punctured in my back" "I suffer like having a heavy load on my back".
- These patients often refuse any kind of psychotherapeutic assistance. The physical physiotherapist may have been unsuccessful in decreasing patient fear and insecurity during treatment because of their prejudice.
- They visit many doctors and continue to seek a physical treatment and feel dependent on ongoing cures even though their disturbance is of an another nature.
- Acute back pain: It is a pain that lasts a maximum of 4-6 weeks.
- ▶ 70% of the patients pass this pain for over 2 weeks, even without a treatment. There is no need for a special examinations by the doctor for an acute back pain, except when below cases occur:

- When the patient is over 50.

- When the patient has pain even during the rest.

- If the patient is affected by tumor, has high temperature over 38 degrees for 2 days in a row.
  - When there is immobility, such as inability to walk, fall or other traumas, suspicion for ankylosing spondylitis etc.

#### Chronic back pain

- In this case the pain lasts around 6 weeks or more.
- Then the doctor advises performing some of the most sophisticated examinations.
- X-Ray examination picture in an orthostatic position, to verify curves.
- CT (Computed Tomography), which detects even the smallest shifts of the vertebras; MRI (Magnetic Resonance Imaging) which is more accurate than CT, but less harmful; EMG (Electromyography) which through electrodes that are put on the skin of the hands and feet, evaluates the function and integrity of the nerves that emerge from the spinal medulla and show the corresponding muscular activity.
- Blood tests may be required if suspected for a serious inflammatory process, as in the case of ankylosing spondylitis.
- When back pain comes as a result of incorrect posture which it will normally interfere in lifestyle and working conditions, then it is necessary to advise appropriate physical activity and avoiding inactive lifestyle and to be focused more in gaining a such lifestyle that shall prevent deterioration on their spine. That was proven a lot of benefits' during several exercises. Correct posture is the main factor for future steps.

### <u>Lumbar pain</u>

- Lumbago is more widespread (in around 90% of the cases).
- Its acute form is a result of lifting a weight from the ground or an uncontrolled movement of the column's pars lumbar. In this case there may occur irritation of the ischemic nerve (lumboischialgia).
- In chronic cases, the main cause may be the posture, for example standing for a long time in the same position, sitting position, driving a long way etc.

#### **Diagnosis:**

- The diagnosis is initiated based on:
- Patient's anamnesis to understand the causes of the pain
- Clinical examinations
- Laboratory-imaging examinations of the details
- Physiotherapeutic treatment divided into two terms or phases
- First term or first phase: analgesics and muscle relaxants
- In the acute phase:
- 1- Absolute rest
- 2- Applying below medical therapy, for 5-10 days when there are no contraindications
- a) Analgesics
- b) A.I.N.S
- b) Steroids (AIS)
- b) Myorelaxants

As a rehabilitation therapy, it is advisable to begin with:

- - Antalgic massotherapy 10-15 sessions
- Antalgic twisting massage of the back muscle
- Antalgic gymnastics and posture in lifting or lowering weights
- - Maintain propitiousness
- Maintain muscle strength
- Electrotherapy, e.g. the laser therapy, ultrasounds etc.

In the chronic stage, the electrotherapy plays an important role, always depending on the cause of the pain.

- Medical therapy:
- a) Analgesics
- Physical therapy:
- a) Massotherapy (in muscular contraction)
- b) Antalgic electrotherapy (as antalgic treatment)
- c) Ionophoresis (with the use of the A.I.N.S)
- d) T.E.N.S (as an antalgic treatment)
- e) Ultrasound (in muscle contractions)

#### Second term or the second phase

The prophylactic-prevention has to do with:

- Correction of the posture
- Postural education
- Muscular softening
- Muscular strengthening
- Kinesitherapy is applied on:
- Functional column limitations
- Muscular hypotrophy
- Individual or group, complete or total partial medical gymnastic exercises for the vertebral column (back-school)
  - Correction of the posture and postural education
  - Muscular softening
  - Muscular strengthening

### McKenzi - Treatment

- Treatment principles for cross pain syndromes in the lumbar area using McKenzie's method.
- The treatment is focused on patient's education to reduce the pain and preventing recurrence and also self treatment by the patient using specific exercises based on assessment's finding.
- McKenzi's treatment method is based on these principles:
- Postural syndrome
- Dysfunctional syndrome
- Derangement syndrome

#### **Role of the physiotherapy**

• Patients with self-management skills are an integral part of the McKenzie method.

They learn how to perform the specific exercises, poises, and dynamic positions and mechanic assessment to have a direct therapeutic benefit. One of the benefits of the McKenzie Method (or McKenzieTherapy) is that it is a standardized approach to both the assessment and treatment of low back pain and/or leg pain (sciatica).

**Electricity current:** is used for some purposes ex. to block the pain transmission and to stimulate muscular contractions.

Electrophoresis (Ionophoresis) applies analgetic or anti-rheumatic ions through electrotherapy with analgesic intention.

- Articulation purpose: Passive mobilization of the lumbar spine
- Muscular purpose: Muscle stretching
- Exercises
- Muscular strengthening
- We strengthen the muscles that stabilize the spinal cord, especially the ones in the lumbar and abdomen area

**Sonotherapy-** With increased blood circulation, an ultrasound helps reduce muscle spasms, cramping, swelling, stiffness, and pain. It does this by sending deep sound waves into your muscle tissues, creating a gentle warming that enhances circulation and healing.

#### Vertebral Traction

The vertebral traction of the lumbar cord is performed with a device called Extensionat (Traction bed) in order to soften or release the compression on the vertebras in the intervertebral disk and in the nerve root.

#### MATERIALS AND METHODS - CLINICAL CASES

- Clinical cases treated in the clinic for physical therapy and the rehabilitation "PHYSIOTHERAPY" in Ferizaj.
- We have started this study to record the patients about the physical therapy results or better saying, of the certain modalities and their effects unto complications at the lower part of spinal cord at the lumbar level.
- At the cabinet of the physical therapy clinic "PHYSIOTHERAPY" we started to treat cases (patients) that came for treatment, firstly by completing a questionnaire about participating in this study prior to beginning with the physical therapy treatment and after the physical therapy treatment combined with a medication therapy.
- The patients who participated in this study were obliged to follow the process of the physical therapy according to the protocol or therapy we have had chosen.

During the treatment each patient has cooperated if they had pain and kept it under control by giving them anti-inflammatory, non-steroidal and analgesic medications like Paracetamol, Ibuprofen, Naproxen, Piroxicam, Ketoprofen, Codeine combined with Paracetamol etc.

- There were many patients in our clinic but we chose these patients with similar diagnosis and pain, but with different clinical manifestations, each patient had its own characteristics. Physical therapy on these patients was modified and overmuch, but no complication occurred which would make us to stop the physical therapy, except low or medium pains in some patients.
- These patients willingly expressed to present their personal data and were more than happy during and after the treatment period.
- Patients will have regular monthly controls after the therapy to check their health situation and the sustainability of the positive effects after the therapy.
- ▶ 95% of the patients had excellent results and returned to their normal life with no difficulties, 86% of them returned to their occupation, because of the very good health situation. And there was no need to intervene to change the occupation or workplace.
- Patients were later examined to monitor their health situation and only two cases had minor pain recurrence, but there was no need to intervene with a therapy, but had just advices and to continue exercises at home.
- Our clinic is also going through other studies regarding the changes on the knees like Gonarthrosis, Cervical Discopathy and muscular changes on young sportsman.
- Each patient willingly fulfilled the questionnaire created for problems with the HD lumbar cord and their data helped us a lot to provide more qualitative rehabilitation.

### **Questionnare**

Name and Surname		
Age:		
Occupation	Worker	Intellectual
Residence	Village	City
Do you have sport activities	YES	NO
Do you have pain	YES	NO
How long you are in pains?	1-2 weeks	1-2 months
How did the pain start?	Immediately	Gradually
When is the pain greater?	Day	Night
Does the pain interrupt you during the walk?	YES	NO
When do you feel the pain?	Moving	Resting
Pain intensity as per EVA: Low (0-3)	Approx.(4-7)	High(8-10)
Did the pain interrupt at work?	YES	NO
Did you have changes on inner organs?	YES	NO
Did you like the physical therapy treatment?	YES	NO
Improvement after the physical therapy?	YES	NO
Earlier treatments?	YES	NO
Changes in the lifestyle?	YES	NO
Able to work?	YES	NO
Any complications after the therapy?	YES	NO

### PATIENT'S EDUCATION

Before starting with treatment and after the treatment:

- Firstly, the patient needs to get informed about the nature of the disease, its prognosis, the obese patients should be advised to eliminate the over weight with adequate programs, to save energy, paying attention with spine cord during the movement, orthopedic supportive equipment (crutches) necessary for everyday life activities maintaining the stability of the spinal cord.
- We must recommend patients to have a rest, which should be respected as long as it is needed, recommend exercises after the rest, continuous all muscles exercises, changing the workplace if it's the cause of the pain in the lumbar region.

### CONCLUSIONS

- These patients after the treatment period, once again discussed (anamnesis) about their health conditions, about the results and the effects of physical therapy during the treatment period.
- The main complaint of the patients was the pain and other troubles caused by the pain. The pain was strong, puncturing and tingling, causing psycho-physical difficulties.
- Almost all the patients assessed the physical therapy after the treatment with the highest rate, because they had significant improvements, had no pain and could develop their psycho-physical activities normally.

### INCIDENCE

- ▶ Kosovo is a post-war country where poverty rate is high, socio-economic conditions are not good, locomotors and rheumatic pathologies are at very high levels. There is still no research on the incidence of lumbar syndrome in Kosovo to know the exact number of cases for this pathology.
- But in the Ferizaj region where I live and work we have collected data also from primary and secondary health institutions, we concluded that there is a very high incidence of lumbar syndrome and after the cardiovascular diseases are ranked the rheumatic and degenerative diseases. Lumbar syndrome is part of the group of diseases that by the incidence in population it is very high and reasons of causing it undoubtedly are the living conditions and the workplace as well as other causes.
- The patients we treated were from several cities in Kosovo such as Prishtina, Lipjan, Ferizaj, Kaçanik, Shtime, Hani i Elezit, Vitia. Most of the patients are citizens from these places which frequently visit the ambulance where we work, in the center of Ferizaj and Prishtina.



#### **RESULTS AND DISCUSSION**

In our research it was found that a dozen of patient within two clinics approximate number 100, the cure and treatment of dick hernia was very successful in the end. A high percentage of them 90 % got better in the end of the treatment avoiding surgery intervention if possible. With an advice to exercise and follow up treatment after couple of months.



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