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Management of TENS and Neural mobilization Exercise in cases of Ischialgia/sciatic pain dextra at RSUD Soeselo Slawi

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ABSTRAK

Ischialgia/sciatic pain adalah kondisi dimana pasien mengalami nyeri atau paresthesia pada saraf skiatik atau akar saraf lumbosacral. Tujuan yang ingin di capai yakni untuk mengetahui manfaat dari Trans Electrical Nerve Stimulation dan Neural mobilization untuk mengurangi nyeri pada ishialgia/sciatic pain dextra. Hasil yang di peroleh setelah melakukan terapi sebanyak 5 kali pertemuan terdapat penurunan nyeri tekan pada ischiadicus dextra T1: 4 menjadi T5: 2, adanya penurunan paresthesia pada n.ischiadicus dextra T1: 6 menjadi T5: 4. Untuk peningkatan kemampuan aktivitas fungsional didapatkan T1: 40% menjadi T5: 30%. Pemberian modalitas Transcutaneous Electrical Nerve Stimulation dan neural mobilization exercise dapat mengurangi nyeri dan paresthesia n.ischiadicus serta meningkatkan kemampuan aktivitas fungsional pada kasus ishialgia/sciatic pain dextra.

Keywords: Ischialgia/sciatic pain, Transcutaneous Electrical Nerve Stimulation and Neural mobilization.

Abstract

Ischialgia/sciatic pain is a condition where the patient experiences pain or paresthesia in the sciatic nerve or lumbosacral nerve root. The purpose of this therapy is to find out the benefit of Transcutaneous Electrical Nerve Stimulation and Neural mobilization to reduce pain in Ischialgia/sciatic pain dextra cases. The result after five times treatment, there was a decrease in tenderness on the ischialgia/sciatic pain side of the dextra T1: 4 became T5: 2, a decrease in paresthesia in the right sciatica from T1: 6 became T5: 4. And there is increased the ability of functional activities T1: 40% became T5: 30%. Providing the modalities of Transcutaneous Electrical Nerve Stimulation and Neural mobilization exercise can reduce pain and paresthesia of the n.ischiadicus and enhance functional activity capability in the case of Ischialgia/sciatic pain dextra.

Keywords: Ischialgia/sciatic pain, Transcutaneous Electrical Nerve Stimulation and Neural mobilization.



Introduction

Ischialgia/Sciatica is a debilitating condition in which the patient experiences pain and/or paresthesias in the sciatic nerve or lumbosacral nerve root. The sciatic nerve is located at nerve roots L4 to S2 which fuse in the pelvis to form the sciatic nerve. With a diameter of up to 2cm, the sciatic nerve is easily the largest nerve in the body. Sciatica pain is often exacerbated by lumbar spine flexion, twisting, bending or coughing. The sciatic nerve provides direct motor function to the hamstrings, lower limb adductor and indirect motor function to the calf muscles, anterior lower leg muscles, and some intrinsic leg muscles.

Sciatica is a condition that accompanies some cases of low back pain (LBP) and is characterized by symptoms that radiate down the leg. In most cases, sciatica is caused by disorders of the lumbar disc (Julie M, 2021).

TENS (Transcutaneous Electrical Nerve Stimulation) or Transcutaneous Electrical Nerve Stimulation. Transcutaneous means "skin". In simple terms the TENS unit stimulates nerves with an electric current through the skin. The modified electrical pulse wave then becomes the TENS unit, through the main wires and electrodes to nerves that lie beneath the surface of the skin. Acting on superficial and spinal nerves TENS is a non-invasive tool to help reduce pain or pain. TENS is given with a comfortable intensity, with ten to fifteen minutes of therapy (Prociding National Seminar on Electrical Engineering Vol. 4, 2019).

Neural Mobilization has a special role for the treatment of LBP with radiculopathy. Neural Mobilization has an important role to evaluate and improve the mechanical and neurophysiological integrity of peripheral nerves. Neural Mobilization techniques include: combination of sliding joint movements, or nerve tension. In addition this technique is used in disc disease, to adjust for diffuse pain and in particular, a mobilization technique for sciatic nerve compression and decreased mechanosensitivity of the nervous system, as well as improving nerve tissue, relieving low back pain. Furthermore, this mobilization technique relieves the damaged sciatic nerve structure and increases the range of motion of the joint structure (Salem F vol. 6, 2019).

In a study conducted by Joanna R et al in , the use of tens in backpain cases resulted in a significant reduction in pain. This research was supported by Facci LM et al in 2011 where his research discussed: Effects of transcutaneous electrical nerve stimulation (TENS) and interferential currents (IFC) in patients with nonspecific chronic low back pain: a randomized clinical trial. Sao Paulo Med J, 2011; 129:206–16. The result is a reduction in back pain and research conducted by Salem F vol.6 years, 2019 Neural mobilization exercises in back pain cases resulted in a significant reduction in pain and an increase in functional activity.

Based on the background of the problem above, it can be concluded that the purpose of this study is to determine the effect of physiotherapy management with the modalities of Transcutaneous Electrical Nerve Stimulation and Neural Mobilization tools in reducing pain in ischialgia cases. Knowing the effect of physiotherapy management



with Transcutaneous Electrical Nerve Stimulation and Neural Mobilization as modalities in reducing paresthesia in ischialgia cases. determine the effect of physiotherapy management with Transcutaneous Electrical Nerve Stimulation and Neural Mobilization as modalities in increasing the ability of functional activities in ischialgia cases.

Case Presentation

On April 7, 2021, a 34-year-old woman came to the Soeselo Slawi Hospital with complaints of lower back pain that radiated to her left leg. Two weeks ago the patient began to feel pain in the waist after waking up, without being aware of certain movements that caused the patient pain, with varying pain intensity for two weeks. The patient had no history of falling. But about two weeks ago the patient was out of activity lift heavy weights. At the same time, he saw a GP who prescribed him medication, and referred him to a neurologist for a diagnosis of his condition. Physical examination: pain when walking some distance, pain in the waist, buttocks to lower legs, still unable to carry out normal activities.

The results of the inspection examination obtained, the patient tends to hyperlordosis when standing.

At the time of examination of the active basic movements of the thrusts of flexion, extension, lateral flexion and rotation, the patient tends to get sick when performing the flexion thrusts. Pain was graded on a numerical rating scale (NRS) as 4-6/10 (0 = no pain; 1-3 = mild pain; 4-6 = moderate pain; 7-10 = severe pain) and then measured by . Oswestry Disability Index score with an ODI score of 40% (0%-20% = minimal disability, 21%-40% = moderate disability, 41%-60% = severe disability, 61%-80% = disabling back pain, 81 %-100% = These patients are bed-bound or have excessive symptoms).

Then followed by specific examinations in the form of Lasegue, Bragard, Patrick Test and Fair Test.

To make the condition clearer, the patient took an X-ray, the results of the X-ray showed that there was spondylosis in the L4-L5 and L5-S1 areas (Fig. 1.)



Fig.1. X-ray images show spondylosis of the L4-L5 and L5-S1 lumbar discs.



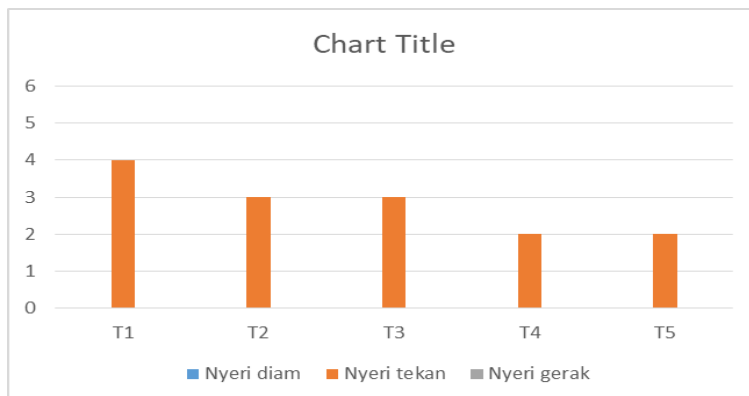
Management and Outcome

TENS is given to the patient in a position as comfortable as possible (prone lying) on the bed and the area to be treated is free of cloth and metal, place the electrode pad on the painful area, then adjust the frequency to 100 Hz for 15 minutes with an intensity according to the patient's taste threshold. After that, the patient sits down and performs neural mobilization exercises. The patient sits on the edge of the bed or chair with a bent posture and puts his hands behind his back. Lower his head and extend his knee/knee extension until he feels pain when stretching. After that, bend the knee slowly until the pain goes away and then move the ankle pump. Performed 3x/week for 4 weeks.

Results of Pain Examination with Numerical Rating Scale (NRS)

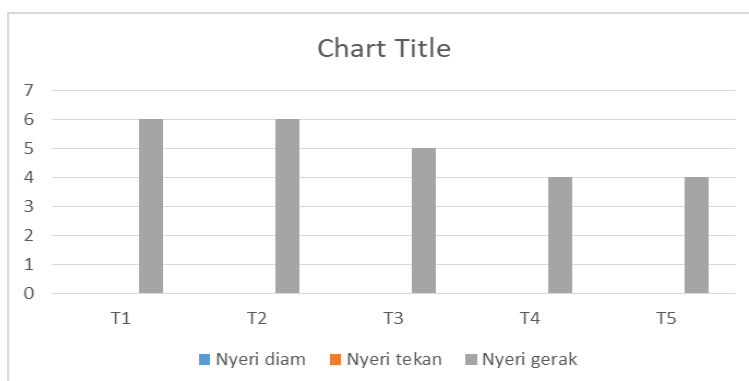
Examination of pain in ischialgia cases was carried out using NRS with a value of 0 = no pain, 1-3 = mild pain, 4-6 = moderate pain, 7-10 = severe pain, the results are as written in graph 1.

The graph above shows a decrease in pain in the right Sacroiliac joint area from T1 to T5. The use of TENS therapy and Neural mobilization can reduce tenderness in the right Sacroiliac joint with a value of T1: 4 to T5: 2.



Graph 1. Pain Examination.

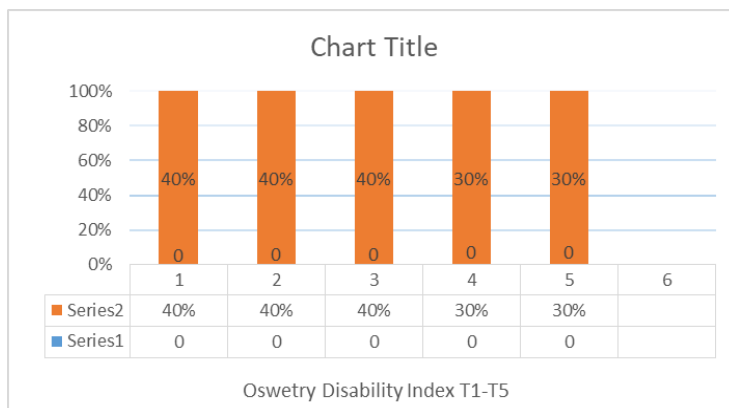
In addition to examining pain, NRS is also often used to measure the level of paresthesia suffered by patients with a value of 0 = no pain, 1-3 = mild pain, 4-6 = moderate pain, 7-10 = severe pain, the results are as follows :



Graph 2. Examination of sciatic nerve paresthesias.

The graph above shows a decrease in right leg paresthesia, especially paresthesia when the right leg is moved. From the results of the graph above, there is a decrease in the value for paresthesia when the right leg is moved or when doing activities, the results obtained at T1: 6 become T5: 4.

Examination of functional activity ability is carried out using the Oswestry Disability Index with 10 question points for the patient's functional activity items as follows:



Graph 3. Examination of the ability of functional activities.

The graph above shows an increase in functional activity from T1 to T5, although the resulting increase is not too significant but the increase is still there when the patient comes to physiotherapy at the fourth meeting. Physiotherapy with Transcutaneous Electrical Nerve Stimulation and Neural Mobilization modalities can improve the ability functional activity. It can be seen at the initial ODI score meeting T1: 40%, which means the patient has moderate disability in carrying out their functional activities to T5: 30% even though it is still in the category of moderate disability but the patient experiences a slight increase in points in functional activity.

Conclusion

After doing a physiotherapy program in ischialgia cases 5 times using Transcutaneous Electrical Nerve Stimulation and neural mobilization exercise with a patient named Ms. M, the results are as follows: Physiotherapy management with Transcutaneous Electrical Nerve Stimulation and Neural mobilization can reduce pain in ischialgia patients, can reduce pharesthesia and can improve functional activity in ischialgia patients.



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