



COMPARISON OF TREATMENT DURATION OF TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION IN THE MANAGEMENT OF OSTEOARTHRITIS KNEE PAIN

Dr. S. Subbiah

M.P.T, Ph.D, Lecturer in Physiotherapy, Division of Physical Medicine and Rehabilitation, RMMCH, Annamalai University, Annamalainagar –PIN: 608 002

ABSTRACT

The purpose of this study was to compare the treatment duration of Transcutaneous Electrical Nerve Stimulation in the Management of Osteoarthritis Knee Pain. For this purpose twenty (N=20) Osteoarthritis Knee patients were selected as subjects. Based on the treatment duration the group was divided into two groups of ten each, group-I was treated with TENS for 20 Minutes Duration group-II was treated with TENS for 40 Minutes Duration. Both groups were treated for a period of seven days. Pain was measured before and after the treatment through numerical pain rating scale. The data obtained from the experimental groups before and after the treatment period were statistically analyzed with Students 't' test. The results of the study found both 20 minutes and 40 minutes duration of TENS are effective in pain relief. But the patient who received 40 minutes of TENS showed better relief than patients who received 20 minutes of TENS.

KEYWORDS : Transcutaneous Electrical Nerve Stimulation, Osteoarthritis Knee Pain

INTRODUCTION

Osteoarthritis is the most common form of joint disease, and the knee is one of the most commonly affected joints. Osteoarthritis is a condition that affects the joints, causing pain and stiffness.

Osteoarthritis (OA) is a chronic degenerative disorder of multifactorial etiology characterized by loss of articular cartilage, hypertrophy of bone at the margins, subchondral sclerosis and range of biochemical and morphological alterations of the synovial membrane and joint capsule.

Osteoarthritis is a disease that affects one's joints. The surfaces within one's joints become damaged so the joint doesn't move as smoothly as it should. The condition is sometimes called arthrosis, osteoarthritis, degenerative joint disease or wear and tear. When a joint develops osteoarthritis, some of the cartilage covering the ends of the bones gradually roughens and becomes thin. This can happen over the main surface of your knee joint and in the cartilage underneath your kneecap. The bone underneath the cartilage reacts by growing thicker and becoming broader. All the tissues within the joint become more active than normal – as if your body is trying to repair the damage (Lane and Nevitt, 1994).

The main symptoms of osteoarthritis are pain and sometimes stiffness, which can affect one or both knees. The pain tends to be worse when one moves the joint or at the end of the day. One may have pain all around their knee or just in a particular place, most likely at the front and sides, and it may be worse after a particular movement, such as going up or down stairs. The pain is usually better when one rests.

There are many factors that can increase the risk of osteoarthritis, and it's often a combination of these that leads to the condition.

Age – Osteoarthritis usually starts from the late 40s onwards. We don't fully understand why it's more common in older people, but it might be due to factors like weakening of the muscles, the body being less able to heal itself or gradual wearing out of the joint with time.

Gender – Osteoarthritis of the knee is twice as common in women as in men. It's most common in women over the age of 50, although there's no strong evidence that it's directly linked to the menopause. It's often associated with mild arthritis of the joints at the ends of the fingers (nodal osteoarthritis), which is also more common in women.

Obesity – Being overweight is an important factor in causing osteoarthritis, especially in the knee. It also increases the chances of osteoarthritis becoming progressively worse.

Joint injury – Normal activity and exercise don't cause osteoarthritis, but very hard, repetitive activity or physically demanding jobs can increase the risk. Injuries to the knee often lead to osteoarthritis in later life. A common cause is a torn meniscus or ligament, which can result from a twisting injury.

A torn meniscus is a common injury in footballers, and an operation to remove the damaged cartilage (meniscectomy) or repair cruciate ligaments also increases the risk of osteoarthritis in later life. Genetic factors – Genetic factors play a major part in osteoarthritis of the knee. If one has a parent, brother or sister with knee osteoarthritis then they will have a greater chance of developing it themselves. We don't know a lot about the genes that cause the increased risk, but we do know that a number of genes will have a small effect rather than one particular gene being responsible (Ruddy et al., 2001).

METHODOLOGY

The study was conducted on twenty (N=20) Osteoarthritis Knee patients who were selected as subjects. Based on the treatment duration the group was divided into two groups of ten each, group-I was treated with TENS for 20 Minutes Duration group-II was treated with TENS for 40 Minutes Duration. Both groups were treated for a period of seven days. Osteoarthritis Knee Pain was measured before and after the treatment through numerical pain rating scale. The data obtained from the experimental groups before and after the treatment period were statistically analyzed with Students 't' test. The results of the study found both 20 minutes and 40 minutes duration of TENS are effective in pain relief. But the patient who received 40 minutes of TENS showed better relief than patients who received 20 minutes of TENS.

RESULTS AND DISCUSSION

The analysis of dependent 't'-test on the data obtained Osteoarthritis Knee Pain of the subjects in the Pre-test and Post-test of TENS for 20 Minutes Duration group, and TENS for 40 Minutes Duration group have been presented in Table-1.

Table –1 THE SUMMARY OF MEAN AND DEPENDENT 't' TEST FOR THE PRE AND POST TESTS ON OSTEOARTHRITIS KNEE PAIN OF EXPERIMENTAL GROUPS

Mean	TENS for 20 Minutes Duration group	TENS for 40 Minutes Duration group
Pre- test mean	7.00	7.20
Post-test mean	5.00	4.70
't'-test	4.74*	7.62*

* Significant at 0.05 level.

(Table value required for significance at .05 level for 't'-test with df 9 is 2.26)

Table-1 showed that the pre-test mean on Osteoarthritis Knee Pain of TENS for 20 Minutes Duration group, and TENS for 40 Minutes Duration group are 7.00 and 7.20 respectively. The post-test mean are 5.00 and 4.70 respectively. The obtained dependent t-ratio values between the pre and post test means on Osteoarthritis Knee Pain of TENS for 20 Minutes Duration group, and TENS for 40 Minutes Duration group are 4.74 and 7.62 respectively.

The table value required for significant difference with df 9 at 0.05 level is 2.26. It was concluded that Experimental groups such as 20

Minutes Duration group and TENS for 40 Minutes Duration group had registered significantly decrease in Osteoarthritis Knee Pain.

The pre and post mean values of 20 Minutes Duration group and TENS for 40 Minutes Duration group on Osteoarthritis Knee Pain are graphically represented in the Figure -1.

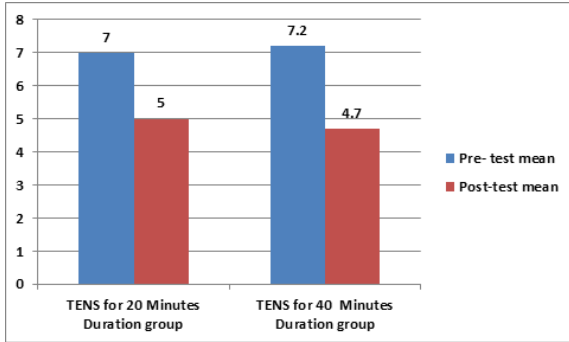


Figure-1: The pre and post mean values of 20 Minutes Duration group and TENS for 40 Minutes Duration group on Osteoarthritis Knee Pain

CONCLUSION

From the analysis of the data, the following conclusions were drawn.

The results of the study found both 20 minutes and 40 minutes duration of TENS are effective in Osteoarthritis Knee Pain relief. But the patient who received 40 minutes of TENS showed better relief than patients who received 20 minutes of TENS.

REFERENCES

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