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ORIGINAL ARTICLE

Effects of Transcutaneous Electrical Nerve Stimulation along With Home Based Care Program on Low Back Pain and Disability in Post-Partum Patients

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ABSTRACT

Aim: To determine the Effects of Transcutaneous Electrical Nerve Stimulation Along with home based care program in postpartum patient with low back pain for improving pain and disability
Study design: Quasi-Experimental study
Place and duration: Kanaan Physiotherapy and spine Clinic Lahore, Pakistan from 2 March 2021-3 September 2021.
Methodology: A total of 70 postpartum patients age range between 18years-40years were randomly allocated in 2 groups. Inclusion criteria was patients having low back pain during delivery and any other syndrome or anatomical abnormality were excluded. Group A received TENS plus supervised conventional home physical therapy program while Group B received Conventional home physical therapy program. Both groups took 5 sessions in a week treatment. Generalized the low back pain was measured by numeric pain scale, Modified Oswestry disability questionnaire was used to assess disability. Data analysis was done by using SPSS Version 21.
Results: The experimental group showed significant improvement low back pain postpartum in numeric rating pain scale ($p<0.00$) (Pain) and Oswestry disability index ($p<0.00$) (Disability)
Conclusion: It was concluded that Transcutaneous Electrical Nerve Stimulation along with home based exercise was significantly in reducing low back pain in postpartum**.** Comparison between both groups showed significant improvement in decreasing disability and pain after treatment.
Keywords: Low back pain, postpartum period, Transcutaneous Electrical Nerve Stimulation

INTRODUCTION

Pregnancy related back pain is reported to occur in 20% to 90% of the women. About 75% of the women who have had back pain in the pregnancy continue to have it even after giving birth[1]. The physiological and anatomical changes that occur in Pregnancy can lead to several discomforts including back pain. However, for some women, this severe ache, stiffness, and soreness in the lower back may not subside even after pregnancy[2].

A woman's body releases progesterone and relaxing hormones during pregnancy, which relaxes the ligaments and joints of her pelvic bone to make the delivery of the baby easier. But these hormones may stay in the mother's body for a few more months and may lead to lower back pain. As a woman's body goes through a lot of physical changes during pregnancy, she may experience lower back pain from the second trimester. And it may continue a few months postpartum[3].

An increase in weight during pregnancy can sometimes lead to lower back pain. During pregnancy, when a woman starts putting on weight, her knees and muscles carry the additional burden, which may trigger lower back muscles[4].

This pain may last even after the delivery. Another reason for back pain is the expansion of the uterus during pregnancy. As the uterus grows, there is an additional strain on the lower abdominal muscles and lower back of a pregnant woman which causes back pain. This pain may take a while to subside even after delivery. If a woman has a normal delivery, then while pushing out the baby, many of her muscles which have been stagnant in the normal course of her life, would work and stress out[5].

Skin nerve stimulation is a treatment for back pain that uses low-voltage electrical current to relieve pain. TENS is usually performed on a small battery-powered device. The device can be attached to a belt and connected to two electrodes. The electrodes transport electric current from the machine to the skin[6].

Nerve stimulation is a treatment for back pain that uses a low voltage electrical current to relieve the pain. This is usually done on a small battery -powered device. The device can be attached with a belt and connected to two electrodes. The electrodes carry electrical current from the machine to the skin[7].

L.Lemans et al. conducted a study in 2021 revealing the effects of Transcutaneous Electrical Nerve Stimulation and heat to reduce pain in a chronic low back pain. Fifty participants with chronic low back pain were randomly assigned to two groups: Experimental group Heat TENS and control group. After four weeks of treatment, all measurements TENS heat showed good results as compared to control[8].

Leah D et al conducted a study in 2020 on Characteristics and Management of Pregnant Patients from a Neuro-musculoskeletal Medicine/Osteopathic Manipulative Medicine Clinic. This data, which documents the most frequent presenting complaints of pregnant patients in an NMM/OMM clinic, may be used by clinicians to better understand the role of OMM as an obstetric adjunctive treatment approach and to identify conditions to investigate in future outcome studies[9].

Vesentini et al conducted study 2020 in which optimal treatment schedules cannot be reliably determined based on available data. There were some Side effects include mild skin irritation on the side of placing electrodes. Currently, evidence from a small number of placebo-controlled trials supports the use of TENS in the standard management of acute LBP. Further research is fortified[10].

The significance of this study to find out the Effects of Transcutaneous Electrical Nerve stimulation in Postpartum Patients with Low Back Pain for improving pain and disability. Since limited studies have been done in these areas before, so this is very helpful to know how common low back pain among Postpartum. This is extremely needed rising awareness lessening the rate of disability resulting due to low back pain among Postpartum and help in raising the knowledge about decrease this incidence

MATERIALS AND METHODS

This Quasi-Experimental research was conducted at Kannan Physiotherapy and spine Clinic in the duration of 6 months from 2 March 2021 to 3 September 2021. Sample size was calculated by using G-Power[11]. After adding 20% drop out rate the final sample

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size becomes 70 (35 in each Group). Power of the study = 80%[12]. Non Probability Purposive Sampling technique was used. Inclusion Criteria was women who had normal delivery between age range of age range between 18 to 40 years, six week post-partum and patients Low Back Pain of Normal delivery (i.e. pain =>3 Numeric Rating pain Scale).Females with Anatomical anomaly, Structural disorder of spinal alignment (Scoliosis, kyphosis, lordosis), Traumatic / Inflammatory / Infectious Conditions, Diagnosed stress / depression / Anxiety, C-section, and any Previous history of backache were excluded. Data was collected after taking Verbal Informed Consent from each patient. Participants undergo a detailed examination and assessed for eligibility as defined in the inclusion and exclusion criteria. Modified Oswestry disability questionnaire was used to assess functional outcome. Numeric rating pain scale was used for measurement of pain. In each group 35 patients were be randomized through computerized random number method. Computerized method was automatically conceal the allocation. All the outcomes filled before start of treatment, and after end treatment. In group A the patients received TENS and conventional Physical Therapy along with home-based exercises for back flexibility and strengthening and Group B patients were given Conventional physical therapy along with home based exercises. Participants were reassessed on the outcome scales at end of treatment. The screening, detailed examination, pre-post assessments of outcome measured by assessor, it was single blinded study in which assessor masked about the treatment option. Data was analyzed in SPSS version 21.

RESULTS

Table 1 showed Group A TENS and Conventional physical therapy along home based care exercises showed mean age of 38.17±7.99.and Group B Conventional physical therapy along home based care exercises showed mean age of 37.23±7.90. Group A TENS and Conventional physical therapy along home based care exercises showed mean weight of 79.09±5.49 and Group B Conventional physical therapy along home based care exercises 74.06±5.75. Group A showed mean height of 173.20±3.03. Group B showed Mean Height of 170.71±2.98.Mean of BMI of Group A was 26.71±1.27. Mean BMI of Group B was 24.83±1.24.

Table 2 showed The statistical readings regarding pre-interventional of Numeric Rating Pain Scale showed that mean and standard deviation found to be 3.48±0.65 in group A and 3.31±0.63 in group B with no significant difference, p value 0.06 while post treatment mean and standard deviation on found to be 1.37±0.54 in group A and 3.25±0.61 in group B, with statistical significant difference, p value <0.000.

Table 3 showed the statistical readings regarding pre-treatment of Modified Oswestry Disability Index showed that group A and group B at Pretreatment stage with mean difference was compared where a no statistically significance difference in Modified Oswestry disability index was found as p – value = 0.17 > α = 0.05 while group A and group B at Post – Interventional stage with mean difference -a statistically significant difference was found at Post Interventional stage as p – value = 0.000 < α = 0.05.

Table 1: Demographical representation

Group of participants	Group A	Group B
Age	38.17±7.99	37.23±7.90
Weight	79.09±5.49	74.06±5.75
Height(cm)	173.20±3.03	170.71±2.98
BMI	26.71±1.27	24.83±1.24

Table 2: Independent sample T-test of numeric rating pain scale.

Numeric Pain Rating Scale	Group A	Group B	p-value
Pre Treatment	3.48±0.65	3.31±0.63	0.6
Post-Treatment	1.37±0.54	3.25±0.61	0.000

Table 3: Comparison of Modified Oswestry disability index

Modified Oswestry Disability Index	Group A	Group B	p-value
Pre-Treatment	5.00±0.76	4.74±0.78	0.17
Post-Treatment	2.00±0.68	2.68±0.68	0.000

DISCUSSION

M. Quittan et al conducted a study in 2021 that Transcutaneous Electrical Nerve Stimulation (TENS) in Patients with Pregnancy-Induced Low Back Pain and/or Pelvic Girdle Pain. Low back and/or pelvic girdle pain is common during pregnancy and may persist after delivery[13]. Therapeutic methods to alleviate pain, with no side effects for mother and child, are of high clinical importance[14]. The prevalence of back pain in pregnancy is reported to be 75% especially in the last trimester, 20% of these report posterior pelvic pain. In this study participants' of group A taken TENS therapy showed significant improvement as compared to group B. TENS is a safe therapy for low back and/or pelvic girdle pain in the last trimester of pregnancy with no side effects, low costs and the possibility of home application[15]. Results of present study are also in the favor of this research which showed that Transcutaneous Electrical Nerve Stimulation is an effective way of reducing pain and disability in post-partum period.

According to one another research which was done to compare the two groups for the management of postpartum low back pain. Group A showed a statistically significant difference compared to group B in terms of pain and function of the lumbar spine when analyzing different variables[16]. The two groups had statistically significant differences in NPRS, MODI and SF36 scores. Therefore, these results revealed that the Experimental group TENS with conventional physical therapy is more effective than Control group conventional physiotherapy in terms of pain and function[17]. In the present study, there is a statistically significant difference in the intergroup analysis of NPRS outcomes. Pain was more reduced after TENS treatment with the conventional physical therapy group than in the only Conventional physical therapy. The decrease in pain intensity in group A could be linked to the rationale with the benefits of TENS.

In 2018 Resende et al conducted a study, According to the literature, Transcutaneous Electrical Nerve Stimulation and interferential currents are the most used methods of electrotherapy, but there is little scientific evidence to support their use. According to the research TENS is suggested as a medically effective intervention to reduce pain and improve function in less than three months[18]. The pain was also reduced in Conventional physical therapy group without TENS because of the dilation of blood vessels in the muscles that surround the lumbar spine due to Exercises[19]. This mechanism stimulates the supply of muscles with oxygen and which helps to repair damaged tissues. It triggers the skin's sensory receptors, which means that the fluid in the area will reduce the transmission to the brain of pain and partly alleviate discomfort[20]. The purpose of present study was to compare the effects of TENS and interferential currents in patients with nonspecific chronic low back pain. Both treatments are well accepted and recognized treatment methods for people with chronic low back pain. The present study indicates that the combination of TENS with conventional physical therapy is helpful in relieving pain, improving mobility, strength and functional status in people with chronic low back pain.

CONCLUSION AND RECOMMENDATIONS

This research study concluded that Transcutaneous Electrical Nerve Stimulation is an effective technique for reducing postpartum lower back pain. TENS used with other methods of LBP treatment such as home base exercise plan decreased pain and disability. Further studies should be conducted on large sample size and the effects of TENS should be evaluated in patient with other musculoskeletal disorders so that the efficacy of TENS can describe more advantageously.

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