

Effect of Circuit Training Along with Music Therapy to Relieve Chronic Pain Syndrome in Post-Stroke Patients: An Experimental Study

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ABSTRACT

Aim: To study the effect of circuit training along with music therapy to relieve pain in post-stroke patients.

Background: Although the majority of prior epidemiological studies have often included small cohorts of patients with very short-term follow-up, chronic pain syndromes are reported to be common following stroke. In this study, circuit training along with music therapy was tested in post stroke patients in relieving chronic pain syndrome.

Procedure: Total 50 patients were included in the study according to the inclusion & exclusion criteria. They were recruited using convenient sampling method. A Pre-post analysis of chronic pain was conducted using a standardized chronic pain grade questionnaire. The duration of the intervention 5 days a week for 4 weeks. The data was analysed using paired t test using instat software.

Results: The outcome measure reveals reduction in overall pain. Circuit training along with music therapy has been shown to be effective in reducing chronic pain in post stroke patients with p value <0.05.

Conclusion: Circuit training along with music therapy has shown to relieve chronic pain in post stroke patients.

Keywords: Chronic pain syndrome, Circuit training, Music Therapy.

INTRODUCTION

Neuropathic pain is defined by the International Association for the Study of Pain (IASP) as any pain brought on by a somatosensory system injury or illness. Clinically, neuropathic syndromes are distinguished by a variety of symptoms other than pain, such as tingling, numbness, or pins and needles sensation. Such syndromes can be categorised into two categories: those that emerge from injury in the peripheral nervous system and those that are the result of a central lesion or disease. (6)

Chronic pain syndromes can be caused by central or peripheral causes, including nociceptive and neuropathic processes.(12,17) Central post-stroke pain (CPSP) is defined as the neuropathic pain that arises either acutely or in the chronic phase of a cerebrovascular event (ischemic or haemorrhagic) and is a result of central lesions of the somatosensory tract Central poststroke pain (CPSP) is a neuropathic pain syndrome that is a direct result of ischaemic damage, and it is very challenging to investigate because it typically sees an unpredictable latent period between the commencement of a stroke and the development of pain discomfort. CPSP is a frequent pain syndrome after stroke,

estimated to account for more than one-third of all occurrences of post-stroke pain. It typically develops within 3 to 6 months of a stroke. (12)

However, in addition to the more general advantages linked to better physical and mental performance and overall health, exercise may also have particular advantages in lessening the intensity of chronic pain. A growing number of healthcare systems are promoting and providing physical activity and exercise programs for a range of chronic pain disorders. (7) According to Thaut (2015), music is a vibration of harmonized air. The nerves in the ear catch it and pass it on to the nerves of the brain, and in the brain, music will affect the pituitary to release endorphins so as to reduce pain. (3) In this study, circuit training along with music therapy was tested in post stroke patients in relieving chronic pain syndrome.

MATERIALS & METHODS

MATERIALS:

- 1) Consent form
- 2) Demographic data
- 3) Chair
- 4) Yoga mat
- 5) Music speaker

METHODOLOGY

Sample size- 50

Study Design- Experimental study

Sampling Method- Convenient sampling method

Study population- Patients with stroke

Study setting- Tertiary care hospital

Inclusion criteria:

- 1) Subjects with informed consent.
- 2) Both the genders.
- 3) Age between 45-65 years.
- 4) Patients with Subacute stroke (>7weeks to 6 months).
- 5) Stage 4 or 5 on the Brunnstrom stage of recovery.

Exclusion criteria:

- 1) Any recent fractures.

- 2) Recent surgeries.
- 3) Acute and Chronic stroke patients.
- 4) Patients with perceptual disorders.
- 5) Hemiplegia with shoulder pain.

PROCEDURE

Total 50 patients were included in the study according to the inclusion & exclusion criteria. A Pre- post analysis of chronic pain was conducted using a standardized chronic pain grade questionnaire. The intervention was given on the count of 10 repetitions with rest period of 3 minutes in between them along with music therapy, delivered according to the severity level, consisted of four functional mobility tasks (yoga (Anulom-vilom, Bridging, Bhujangasana), side walking, Reach-outs, supported sit to stand). The duration of the intervention 5 days a week for 4 weeks. During which Saturday and Sunday was regarded as a rest day and the intervention was suspended.

STATISTICAL ANALYSIS

The data was entered using Microsoft office Excel 2013 and data analysis was done using a statistical analysis software. Data was then tested for normality distribution using the Shapiro-Wilk test. The data for absolute values of Chronic pain grade questionnaire score (CPGS) pre- and post-intervention passed the normality test for both the groups therefore for within group analysis, parametric test i.e., paired t test was applied.

RESULT

Total 50 participants, out of which 18% participants belong to age group between 45-50 years, 24% participants belong to age group between 50-55 years, 32% participants belong to age group 55-60 years and 26% participants belongs to age group 60-65 years. The findings from the study revealed that there was significant difference between the mean indices of pre-CPGS and Post-CPGS where p-value is 0.002 i.e. (p>0.05).

DISCUSSION

According to reports, chronic pain syndromes are a frequent side effect of ischemic stroke. Chronic pain syndromes may result from both central and peripheral mechanisms and may be mediated through nociceptive and neuropathic processes.

Music therapy is one of the techniques given to relax the brain whereas circuit training which include flexibility and resistance exercises can relieve muscle spasticity problems, improve motor function, range of motion. This study consists of 50 patients, in which significant effect of circuit training along with music therapy is seen on patients with chronic pain syndrome on Chronic Pain Grade questionnaire scale (CPGS). The study reveals that, the mean of pre-CPGS is 2.86 and that of post-CPGS is 2.20 with correlation coefficient (r)= 0.6303. A statistically significant correlation was found between the Pre- and Post-CPGS using paired t-test where p-value is 0.002 i.e. (p<0.05)

CONCLUSION

Circuit training along with music therapy has positive effect on relieving chronic pain in post stroke patients.

Declaration by Authors

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Conflict of Interest: The authors declare no conflict of interest.

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