

EFFECT OF AEROBIC EXERCISE AND YOGASANA PROGRAMME ON FATIGUE AND STRESS IN PERIPHERAL NEUROPATHY PATIENTS WITH RESTLESS LEG SYNDROME

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ABSTRACT

Background: Restless legs syndrome (RLS) is a neurological disorder characterized by an irresistible urge to move one's body to stop uncomfortable or odd sensations. It most commonly affects the legs, but can affect the arms, torso, and even phantom limbs. Moving the affected body part modulates the sensations, providing temporary relief. RLS has been found to be associated with depression in clinical sample as well as epidemiological studies. Dopamine is implicated in the causation of Psychological symptoms like stress and fatigue. and treatment of RLS by non pharmacologic methods is thought to improve de in RLS patients. RLS is a hardly studied, probably under-diagnosed condition in India. The exact prevalence of restless legs syndrome in India is not known as not much literature available on restless legs syndrome from India.

Methodology: The age of the patients ranged 40 to 60 years. The patients were diabetic neuropathy with restless leg syndrome were selected as subjects for this study. The patients were divided into two groups. Group A as control group were given pharmacological treatment only. Group B as experimental group were given pharmacological therapy along with aerobic exercises and yogasana program.

Results: Stress: pre test, post test and the adjusted post tests indicates significant difference. This indicates the aerobic exercise and yogasana programme on reducing perceived stress in the Group B after twelve weeks training period.

Fatigue: The pre test is statistically significant difference between the pre-test means of both the groups, The post test mean indicates there was no statistically significant difference between the pre test means of both the groups at 0.05 level of confidence. The adjusted post test means indicates significant difference between the adjusted means at 0.05 level of confidence. This indicates the aerobic exercise and yogasana programme to decrease fatigue in the Group B after twelve weeks training period.

Conclusion: Aerobic exercise and yogasana program with non pharmacological treatment given significant effect in reducing stress and fatigue in restless leg syndrome Patients. The dosage of drugs intake was reduced in group B after the course of the study. Hence this exercise regimen can be given as a adjunct therapy in treating restless less leg syndrome.

KEY WORDS: Restless leg syndrome, Aerobic Exercises, Yogasana programme, Stress and Fatigue.

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Restless legs syndrome (RLS) is a neurological disorder characterized by an irresistible urge to move one's body to stop uncomfortable or odd sensations [1]. It most commonly affects the legs, but can affect the arms, torso, and even phantom limbs [2]. Moving the affected body part modulates the sensations, providing temporary relief. RLS is a hardly studied, probably under-diagnosed condition in India. The exact prevalence of restless legs syndrome in India is not known as less literature available on restless legs syndrome from India. Only the hospital-based data has been reported in Indian literature and population-based survey has not been done on restless legs syndrome [3].

RLS sensations can most closely be compared to an itching or tickling in the muscles, like "an itch you can't scratch" or an unpleasant "tickle that won't stop" [4]. It is a "spectrum" disease with some people experiencing only a minor annoyance and others experiencing major disruption of sleep and significant impairments in quality of life. RLS is associated with depression, anxiety, and negative quality of life [5].

RLS has been found to be associated with psychological disorders such as stress and fatigue in clinical sample as well as epidemiological studies [6,7]. Dopamine is implicated in the causation of depression and treatment of RLS is thought to improve depressive symptoms in RLS patients [8]. Depression is one of the most common disorders seen in both primary care and psychiatric practice. The point prevalence of major depression is 5% to 9% for women and 2% to 3% for men, with a lifetime risk of 10% to 25% and 5% to 12%, respectively [9].

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) requires 5 of the following symptoms be present for at least 2 weeks to make a diagnosis of major depression: depressed mood, diminished interest or pleasure, change in weight, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue, feelings of worthlessness or guilt, Stress, diminished ability to think or concentrate, and recurrent thoughts of death or suicide.

It is common for individuals with RLS to complain of fatigue, disturbed sleep, diminished concentration, and psychomotor agitation, symp-

oms that could either be interpreted as symptoms of depression or as directly due to the sleep disorder [10], emerging data indicate that the occurrence of depression symptoms such as stress and fatigue with RLS is far greater than simple coincidence, consistent with the elevated rates of depression in other sleep disorders such as obstructive sleep apnea and narcolepsy [11,12]. Furthermore, it has been recognized that many antidepressant medications can induce or worsen PLMS which are common in individuals with RLS. Given these considerations, we did a comprehensive literature search to further characterize the association between RLS, PLMS, and depression [13].

The American College of Sports Medicine (ACSM) defines aerobic exercise as "any activity that uses large muscle groups, can be maintained continuously, and is rhythmic in nature." It is a type of exercise that overloads the heart and lungs and causes them to work harder than at rest. Find something you enjoy doing that keeps your heart rate elevated for a continuous time period and get moving to a healthier life [14-20]. In general, it is performed at a moderate level of intensity over a relatively long period of time.

Yoga refers to traditional physical, mental, and spiritual disciplines, originating in India, whose goal is the attainment of a state of perfect spiritual insight and tranquility [7]. Asana is a body position, typically associated with the practice of Yoga, intended primarily to restore and maintain a practitioner's well-being, improve the body's flexibility and vitality, and promote the ability to remain in seated meditation for extended periods. These are widely known as Yoga postures or Yoga positions, which are currently practiced for exercise and as alternative medicine.

Incidence of RLS is more common in middle age and old age people with peripheral Neuropathy. The patients will have elevated stress and depression. There is a very limited study about non pharmacological management of this disorder. It is very important to find an adjunct therapy. Restless Legs Syndrome (RLS) is a usually chronic disorder accompanied by clinically relevant psychosocial impairment. To date there is no proper non pharmacological approach is available to improve RLS sufferers coping strategies and

quality of life.

MATERIALS AND METHODS

The purpose of the study is to effect of aerobic exercise and yogasana programme on depression and stress in patients with restless leg syndrome. 60 patients between age group of 40-60years who met the inclusion criteria's were selected by Purposive random sampling from various hospitals and rehabilitation centers. They were explained about the study and procedure, and the consent for the study was taken. The Inclusion Criteria include patients restless leg syndrome patients were included, Age group 40 to 60 years were selected, both the sex were included, Patients who can able to do exercise and yogasana were selected, Patients undergone RLS treatment for minimum six months with medications. The Exclusion criteria were uncooperative patients, mentally retarded patients, Pregnancy, Chronic kidney diseases, Parkinsons diseases, Withdrawals from sedatives.

Procedure: The age of the patients ranged 40 to 60 years. The patients were diabetic neuropathy with restless leg syndrome were selected as subjects for this study. The patients were divided into two groups. Group A as control group were given pharmacological treatment only. Group B as experimental group were given pharmacological therapy along with aerobic exercises and yogasana program.

Aerobic Exercise Program: Based on Vo2 max (100-age in years) have been administered for calculation of maximum heart rate. Low intensity exercises of 40- 60% of their age predicted maximum heart rate is given to the patient.(5 min warm up,20 min –walking and 5 min-relaxation exercises). Aerobic exercise programme given 3 days per week (Monday, Wednesday and Friday) for a period of 12 weeks. The patients were given with 5 minutes warm up exercises starting from the head, working towards the toes, Neck rolls, Shoulder rotation, Arm rotation, Elbow movements, Wrist movements, Finger movements, Waist movements, Ankle rotation, and Toe movements. After warm up exercises patient were given with low intensity walking for 20 minutes and there after cool down exercises such as mild stretching exercises of muscles in the lower limb and Savasana.

Yogasana: Yogasana programme given 30 minutes per day, 3 days per week (Tuesday, Thursday & Saturday) for 12 weeks (5 min warm up,15 min- asana, 5-pranayama,5 min-savasana)The patients are given with 5 minutes warm up exercises starting from the head, working towards the toes, Neck rolls, Shoulder rotation, Arm rotation, Elbow movements, Wrist movements, Finger movements, Waist movements, Ankle rotation, and Toe movements. After this following yogasana is given to the patient, Vakrasana, Pawana muktasana Yogamudra, Pranayama and Savasana done as a cool down exercise for five minutes.

The patients were assessed with Fatigue severity scale and perceived stress scale pre and post treatment.

RESULT

Table 1: Analysis Of Covariance For Stress Between Group A And Group B.

| Test | Group A | Group B | SOV | Sum of the squares | Df | Mean Squares | "F" Ratio |
|--------------------|---------|---------|---------|--------------------|----|--------------|-----------|
| Pre-test | | | | | | | |
| Mean | 27.13 | 27.66 | Between | 4.26 | 1 | 4.26 | 0.66 |
| S.D | 2.19 | 2.84 | Within | 374.13 | 58 | 6.45 | |
| Post-test | | | | | | | |
| Mean | 21.4 | 14.8 | Between | 653.4 | 1 | 653.4 | 93.8 |
| S.D | 2.12 | 3.06 | Within | 404 | 58 | 6.96 | |
| Adjusted Post-test | | | | | | | |
| Mean | 21.42 | 14.77 | Between | 657.35 | 1 | 657.35 | 93.75 |
| | | | Within | 399.63 | 57 | 7.01 | |

The table value for significance at 0.001 level of confidence with degrees of freedom one and sixty is 11.97.

Table 1 shows that the pre test means of perceived stress scale score of group A and group B resulted in an 'F' ratio of 0.66 which indicates statistically significant difference between the pre- test means of both the groups at 0.05 level of confidence. The post test means of Group B 14.80 and Group A 21.40 resulted in an 'F' ratio of 93.80 which indicates there was no statistically significant difference between the pre test means of both the groups at 0.05 level of confidence.

The adjusted post test means of group B 14.77 and group A 21.42 resulted in an ' F' ratio of 93.75 which indicates significant difference between the adjusted means at 0.05 level of

confidence. This indicates the aerobic exercise and yogasana programme on reducing perceived stress in the Group B after twelve weeks training period.

Table 2: Analysis Of Covariance For Fatigue Between Group A And Group B.

| Test | Group A | Group B | SOV | Sum of the squares | Df | Mean Squares | "F" Ratio |
|--------------------|---------|---------|---------|--------------------|----|--------------|-----------|
| Pre-test | | | | | | | |
| Mean | 50.33 | 47.93 | Between | 86.4 | 1 | 86.4 | 2.75 |
| S.D | 5.55 | 5.64 | Within | 1818.53 | 58 | 61.35 | |
| Post-test | | | | | | | |
| Mean | 40.73 | 26.66 | Between | 2968.06 | 1 | 2968.06 | 94.66 |
| S.D | 6.02 | 5.13 | Within | 1818.53 | 58 | 31.35 | |
| Adjusted Post-test | | | | | | | |
| Mean | 40.02 | 27.37 | Between | 2288.33 | 1 | 2288.33 | 110.8 |
| | | | Within | 1177.13 | 57 | 20.65 | |

The table value for significance at 0.001 level of confidence with degrees of freedom one and sixty is 11.97.

Table 2 shows that the pre test means of fatigue of group A and group B resulted in an 'F' ratio of 2.75 which indicates statistically significant difference between the pre-test means of both the groups at 0.001 level of confidence. The post test means of Group B 26.66 and Group A 40.73 resulted in an 'F' ratio of 94.66 which indicates there was no statistically significant difference between the pre test means of both the groups at 0.05 level of confidence.

The adjusted post test means of group B 27.37 and group A 40.02 resulted in an 'F' ratio of 110.80 which indicates significant difference between the adjusted means at 0.05 level of confidence. This indicates the aerobic exercise and yogasana programme to decrease fatigue in the Group B after twelve weeks training period.

DISCUSSION

RLS usually starts early in life (before 45 years of age) and tends to run in families. It may even start in childhood. Once this type of RLS starts, it usually lasts for the rest of your life. Over time, symptoms slowly get worse and occur more often. If you have a mild case, you may have long periods with no symptoms.

Cuellar NG *et al.* (2010) conducted a study on the relationship with iron and health outcomes in persons with restless legs syndrome. He

stated that the Findings from the study shows that iron supplementation for persons with RLS not only improves motor and sensory symptoms but might also improve sleep, stress, sleepiness, depression, fatigue, and Quality of Life and should be considered by health care providers for treatment of RLS [14].

Kim E. Innes (2012) suggested that this was first study to examine the effects of yoga in persons with RLS, and among the few trials to examine the potential benefits of any non-pharmacologic intervention for those suffering from this disorder. The study concluded that yoga can significantly improve sleep, enhance mood, reduce stress and anxiety, and decrease blood pressure in postmenopausal women with RLS, and thus may offer a promising new treatment modality for this population. Moreover, the overall excellent compliance, high participant satisfaction, and lack of adverse events observed in this study suggest that a gentle yoga program is both feasible and acceptable to older women with RLS [15].

Andrea Maculano Esteves (2011) conducted a study on impact of aerobic exercise on restless leg syndrome. In response to aerobic physical exercise, the patients demonstrated a significant reduction in symptoms of Restless Legs Syndrome after 36 sessions. This reduction was maintained even after 72 sessions of aerobic exercises. The reduction in perceived symptoms such as stress fatigue of RLS may directly or indirectly suggest that aerobic physical exercise improved the participants' quality of life. However, the improvement of RLS symptoms likely preceded the diminished PLM symptoms because the subjective evaluation is more readily perceived by the patients [16].

CONCLUSION

Aerobic exercise and yogasana program with pharmacological treatment given significant effect in reducing the restless leg syndrome symptoms. The dosage of drugs intake was reduced in group B after the course of the study. Hence this exercise regimen can be given as an adjunct therapy in treating restless less leg syndrome.

Conflicts of interest: None

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