

Effect of Mulligan's Traction Straight Leg Raise in Nurses with Restless Leg Syndrome

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ABSTRACT

Background and objectives: Restless leg syndrome (RLS) is common condition and misdiagnosed. It is characterized by pulling, crawling, needle prickling like sensation deeply in legs. Sensation mostly occurs during rest. Symptoms of RLS are worst at night in which irresistible urge to move leg and sleep is disturbed. Non-pharmacological treatments such as physiotherapy treatment for the symptoms of RLS have few studies investigated. Mulligan's traction straight leg raise is one mobilization may reduce symptoms of RLS. The purpose of this study is to determine the effectiveness of traction straight leg raise in nursing population having RLS.

Methods: Ethical clearance was obtained from institutional ethical committee. A Total of 50 consecutive nurses aged between 30 to 50 years were interviewed. They were selected according to the inclusion and exclusion criteria. Those who are fitting in inclusion exclusion criteria were allowed to fill restless leg syndrome scale and global rating scale in pre and post treatment.

Results: Restless leg syndrome rating scale (RLSRS) pretreatment average 21.14 (severe) and post treatment average 10.72 (mild) representing 66% improvement from baseline ($p = < 0.0002$). At the final session nurses reported global rating of change (GROC) ranged from +1 (somewhat better) to +6 (A great deal better) indicating better improvement in nurses from baseline

Conclusion: This presence study concluded that there was significant improvement in symptoms of restless leg syndrome in nurses after mulligan's tSLR technique application.

Key words: RLS, nurses, traction straight leg raise, RLSRS GRC.

INTRODUCTION

Restless leg syndrome (RLS) named after neurologist Karl-axen-Ekbom which is also called as Ekbom syndrome. ^[1] Ekbom syndrome i.e. RLS is neurological movement disorder in which irresistible to move legs, related to sensory-motor disorder. ^[2] In renal-end stage disease followed by iron deficiency and pregnant women prevalence of RLS is more severe and higher. ^[3] Symptoms are unpleasant

sensation, such as burning, pulling, crawling, needle prickling are felt in lower legs. This type of sensation mostly occurs at night and on rest. Sometimes symptoms are mild or severe which lead to sleep disturb. ^[4] There is strong urge to move legs when sensations are felt over affected leg. The RLS symptoms mostly occur in people who prolong sit and stand for longer period of time such as teachers, drivers, desk managers, co-workers and longer travelling

people. [5] The unusual feeling called 'paraesthesia' worsens when lying or sitting which occurs in legs deeply. Hence by moving legs symptoms are relieved or by actively gentle stretching of legs symptoms are vanished for few time. Muscles get tightly twitch involuntarily occur in people with RLS having sleep related disorder called periodic limb movement disorder. Restless leg syndrome (RLS) is highly affected in females but it also occurs in male. [8] Based on symptoms and severity of RLS, the RLS can be classified as mild, moderate, severe and very severe according to restless leg syndrome rating scale. [7] Based on etiology and age of onset restless syndrome can be classified in many types such as primary RLS, secondary RLS, early onset (age-45 years), late onset (above 45 years). Some risk factors of RLS are stress, fatigue, end-stage kidney disease, family history, pregnant women with iron deficiency and anemia, iron and calcium deficiency. [6]

Pathophysiology

In restless leg syndrome there would be abnormality in storage of iron and dopamine in body which could involve change in dopamine rupture.

The rate limiting enzyme in dopamine depression synthesis in which iron is necessary co-factor for tyrosine hydroxylase.

Studies showed by electrophysiological and magnetic brain stimulator showed increased cortical excitability and subcortical inhibition at site of CNS dysfunction in subcortical loci were suggested.

In brainstem, cerebellum and thalamus imaging point were located in functional magnetic resonance. [4]

CLINICAL DIAGNOSTIC CRITERIA FOR RLS

ESSENTIAL CRITERIA

- Urge to move legs, usually accompanied by or caused by comfortable sensation in legs.
- The urge to move or unpleasant sensation is partially or totally relieved by movement

such as walking or stretching at least as long as activity continues.

- Urge to move or unpleasant sensation are worse in evening or night than during day or only occur in evening or night.

SUPPORTIVE FEATURES

- Dopaminergic responsiveness.
- Presence of PLM in sleep or in wakefulness.
- positive family history.

ASSOCIATED FEATURES

- usually progressive in clinical course
- Sleep disturbance. [5]

PHYSIOTHERAPY INTERVENTION FOR RLS

There some physiotherapy intervention which help in reducing symptoms of RLS are massage, [9] stretching exercise, [11] yoga and aerobic exercise [12] and lifestyle modification, [10] traction straight leg raise. [13]

MATERIALS AND METHODOLOGY

Type of study- Experimental study, Study design- pre test and post test, Place of study- Krishna hospital, Karad, Sample size-50, Sampling Method-Simple random sampling, Duration of study- 3 months. Inclusion criteria: Nurses who are diagnosed with idiopathic RLS by certified physician, both males and females nurses participants who are willingly to participate in study, age group between 30-50 years, nurses who are not taking any pharmacological and non-pharmacological treatment for RLS. Exclusion criteria: Nurses with history of spinal cord injury, Nurses diagnosed secondary or primary progressive neurological disorders (e.g. peripheral neuropathy, diabetic neuropathy, Parkinson disease, etc.), Nurses with sciatic nerve pain, Nurses with low back pain.

Outcome measures: Restless leg syndrome rating scale, Global rating of change.

Statistics Analysis

Statistical analysis was done using Instat Software.

Paired 't' test was used for statistical analysis of pre and post intervention within group.

RESULT

Table no. I Restless leg rating syndrome scale.

	RLRS	
	Pre	Post
Mean	21.4(severe)	10.72(mild)
Median	12	10
IQR	4	3
P value	0.0002	<0.001

In above table, the tSLR technique resulted in 66% of improvement in RLS symptoms in nurses by using restless leg syndrome rating scale. The restless leg syndrome rating scale used for pre and post treatment.

Table no. II Global rating scale.

	GRS	
	Pre	Post
Mean	0	5.02
Median	0	5
IQR	0	2
P value	0	<0.0001

Global rating scale is used for review for physical therapy outcome. So, it is used after treatment given and subject marked the according to their symptoms. In this tSLR technique resulted in 44% of total nurses reported at least +6 improvement in symptoms (Table no. V).

GENDER DISTRIBUTION IN THE STUDY:

Table No. III: Gender distribution

Sr. No	GENDER	TOTAL
1	Male	9
2	Female	41

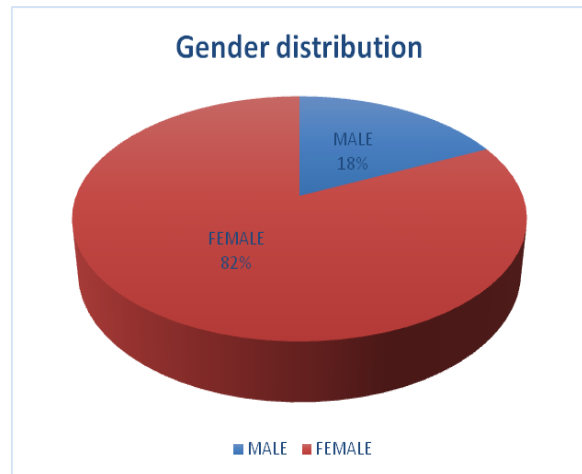
AGE DISTRIBUTION IN THE STUDY:

Table No. IV: Age distribution

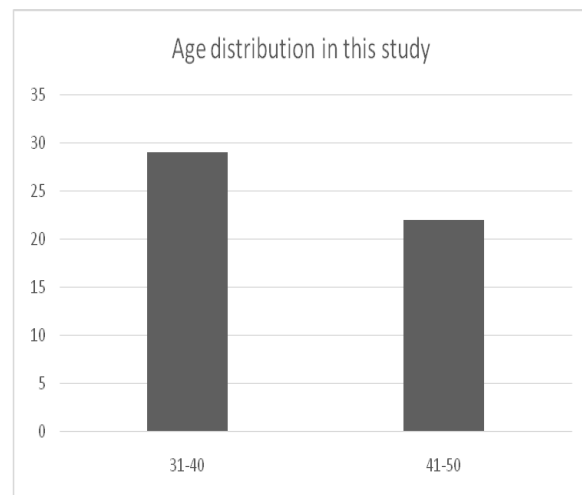
Sr. No	AGE	TOTAL
1	31-40	29
2	41-50	22

Table no. V global rating scale result.

Global rating scale	Associated score	No. of nurses
A very great deal better	7	1
A great deal better	6	22
Quite a bit better	5	11
Moderately better	4	13
Somewhat better	3	3
A little bit better	2	0
A tiny bit better	1	0

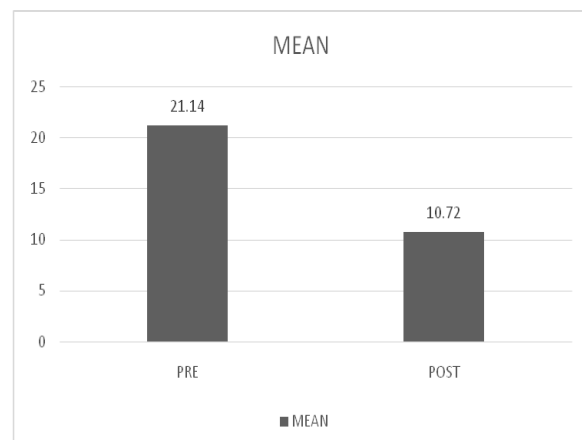


Graph no I: Age distribution females are affected than male.



Graph no. II: Age distribution

Above graph shows that 29 of the total participants aged between 31-40 years, 22 aged between 41-50 years in the study.



Graph no. III: baseline parameters with restless leg syndrome rating scale Above table and graph shows pre and post comparison within the group. Post treatment there was significant improvement.

DISCUSSION

This study "Effect of mulligan's traction straight leg raise in nurses with restless leg syndrome." was conducted to find out the symptoms of RLS in nurses by TSLR and reduces pain. As restless leg syndrome causes pulling, crawling, needle prickling, like sensation in lower legs. Sensations are very strong urge to move legs. Symptoms of restless leg syndrome occur in rest and relieve by moving leg mainly at night. Sleep is disturbed because of this sensation People who prolong stand, sit for long time suffer from symptoms of RLS. As nurses stands for longer time restless leg syndrome symptoms occur in them.

The aim of the study is to find out the effectiveness of mulligan traction straight leg raise in nurses having RLS. The objectives were to determine effectiveness of mulligan traction straight leg raise in nurses having RLS.

The study was conducted on 50 nurses with RLS. The outcome measures for this study were restless leg syndrome rating scale and global rating change which was taken on 1st and 22nd day. The results of this study indicate that mulligan traction straight leg raise is effective in treatment of nurses with symptoms of RLS. This was confirmed using statistical analysis by using 'Paired t-test'

Fifty nurses were enrolled and forty-one females and nine males between the ages of 30-50 (mean \pm SD: 39.24 \pm 36.5000) completed the study. Number of females were more than males because as nursing population has more number of females than males. Also restless leg syndrome occurs during pregnancy. Women loose iron every month so iron level becomes low in them and may contribute to restless leg syndrome being more in females. [13] Nurses having prolonged standing duty so there may be over exertion of muscle and improper posture during standing. Standing for prolong period of time contribute muscle fatigue and cramping like sensation. Some hypotheses for explaining mechanism that

changes in dopamine levels, iron deficiency, and poor nutrition include in RLS. The results showed that series of TSLR treatments, 64% of nurses with primary idiopathic RLS reduced the symptoms.

In overall results twelve subjects reported complete resolution of their symptoms before the end of study conversely three subjects reported mild change in their symptoms and need further treatment.

As twelve subjects had relief from symptoms as they were having moderate symptoms but remaining three subjects were having severe symptoms of restless leg syndrome according to restless leg syndrome rating scale. Remaining thirty-five nurses showed complete resolution on last session of treatment day. The reason behind the improvement is due to traction of limb, during SLR may triggers reflex pathways in CNS affecting lower mechanoreceptors. Stretch reflex of hamstring cause alterations from various descending supraspinal pathways. In normal subject, tSLR technique has been previously used to improve straight leg raise hip range of motion. A typical stretch reflex at posterior leg involves improvements in such and also improves nerve mobility. So the increased hip ROM achieved during tSLR may provide neural mobilization in lower extremity to posterior element. Neural mobilization or nerve glide stretches is a neurodynamic intervention through which nervous system is not slack and it provides changes in sensation. These changes contribute a factor to improvement in RLS symptoms. [14]

Another observation of this study was, nurses were not aware about their conditions or symptoms of restless leg syndrome for which they were not taking any pharmacological and non-pharmacological treatment. Hence, we could say that physiotherapy treatment can be effective to relieve the severity of symptoms of RLS. There are limitations to this study that is done to small geographic area and study duration was limited. There was

absence of randomization. Suggestions to this study that it can be done with large sample size and different sample population.

CONCLUSION

This present study concluded that there was significant improvement in symptoms of restless leg syndrome in nurses after mulligan's tSLR technique application.

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