Research Article

Effectiveness Of Buerger Allen Exercise Among Pregnant Women With Restless Leg Syndrome In A Selected Hospital Banke, Nepal

Srijana Sapkota

Nepalgunj Nursing Campus, TU IOM, Nepal, sapkotasrijana1990@gmail.com

Abstract. Restless Leg Syndrome is a neuromuscular sensorimotor disorder characterized by uncontrolled urge to move the affected legs which is accompanied by distressing parathesia of the leg, described as" creeping, tugging and pulling feeling.". The aim of the study was to evaluate the effectiveness of Buerger Allen exercise among pregnant women with Restless Leg Syndrome. Methods: A Quasi experimental design was carried out to evaluate the effectiveness of buerger allen exercise with a total of 60 pregnant women (n = 30 in the control group who did not receive exercise intervention and n = 30 in the experimental group who received Buerger Allen Exercise). The data was collected within the period of 27th November 2017 to 27th December 2017 using non-probability purposive sampling technique. Data was collected through modified International Restless Legs

Syndrome Scale (IRLSS). Collected data were entered in Statistical Package 21 version and analyzed by using mean and repeated measures analysis of variance. When analyzing symptoms of Restless leg syndrome over time a significant difference was found between two groups where the mean restless leg syndrome severity score of the experimental group who had performed buerger allen exercise as an adjunct to no intervention being noted to be lower than that of the control group. A statistically significant reduction of symptoms was observed in the experimental group ($P < .005$). Conclusion: The study concluded that the Buerger Allen exercise helps in reduction of symptoms of Restless leg syndrome among pregnant women.

Keywords: Effectiveness, Restless Leg syndrome, Buerger Allen exercise

INTRODUCTION

Restless Leg Syndrome (RLS) is a neuromuscular sensorimotor disorder characterized by uncontrolled urge to move the affected legs which is accompanied by distressing paresthesia of the leg, described as" creeping, tugging and pulling feeling".[1] The symptoms often become worsen as the day progresses, leading to sleep disturbances or sleep deprivation, which further result in impairment of alertness, daytime function and unable to enjoy life.[2]

A study shows that the prevalence of RLS during pregnancy is 3.19%- 24% which appears to be approximately 2 to 3 times higher than in non-pregnant women.[3-5] RLS symptoms were more common among women in third trimester (24.1%) compared to the second trimester (14.3%) and first trimester (13.6%).[6]

In this context the current study aims to rule out the Restless leg syndrome and evaluates the effectiveness of Buerger Allen exercise on reliving the symptoms of RLS symptoms among pregnant women. This will be the first study of its kind to determine the prevalence of RLS in the pregnant population and the risk factors for RLS among pregnant Saudi women.

RESEARCH METHODS

This study was quasi experimental time series design conducted among pregnant women attending outpatient department of gayne obs unit, with RLS of Bheri Zonal Hospital, Nepalgunj Banke from 27th November 2017 to 27th December 2017. Prior to the conduction of study, ethical Approval from Institutional Review Board (IRB) of NHRC was taken.

The procedure was fully explained and informed written consent was taken from all the pregnant women recruited for the study. The study populations were pregnant women with RLS who were for Antenatal visit at Bheri Zonal Hospital. Screening was done by modified IRLS criteria to all pregnant women to evaluate the presence of RLS. The RLS Rating Scale was administered only to the women fulfilling diagnostic criteria for RLS. Out of 328 pregnant women 60 pregnant women were enrolled in a study. Sample size was calculated from the published data by using two group mean formula.[3-6]

30 pregnant women were selected as experimental group and pretest RLS Rating Scale was administered. Pregnant women were demonstrated Buerger Allen exercise to the experimental group on the same day of pre-test. They were advised to perform exercise for 12 minutes for thrice a day for 5days per week at home aswell.

They were asked to fill the exercise checklist. The pregnant women were given additional diagram. The intervention was given up to 12thweeeks. Posttest RLS Rating Scale was done on 4th week, 8th week and 12thweek. Follow up was done through telephonic conversation and Female volunteers. During the study period no mortality rate was reported.

Exercise Intervention

The pregnant women were instructed to elevate the lower extremities to a 45 degree angle for 2 minutes and supported to this positioned with pillow until skin appears dead white. They were instructed to sit at bed /chair 5 minute until redness appear. The ankle should rotate inversion, eversion, dorsiflexion and extension. Finally pregnant women were placed on lying position in bed for 5 minute.

30 pregnant women with RLS was selected for control group, pretest RLS Rating Scale was obtained. No intervention was administered. Posttest RLS Rating Scale was done on 4th week, 8th week and 12thweek. Follow up was done through telephonic conversation and Female volunteers. The effectiveness of Burger Allen exercise on Restless leg syndrome was assessed by International Rest Leg Syndrome study group rating scale.

Collected data was checked, reviewed and organized daily for its completeness and accuracy. Data was then edited and coded. Data was entered in EpI info version 7.2 and exported then analyzed by using SPSS version-21. Data was analyzed by using appropriate statistics descriptive and inferential: Repeated measures of ANOVA test was used based on nature of data. The findings of the study were presented through tables and figures.

Figure 1. CONSORT Flow diagram of study
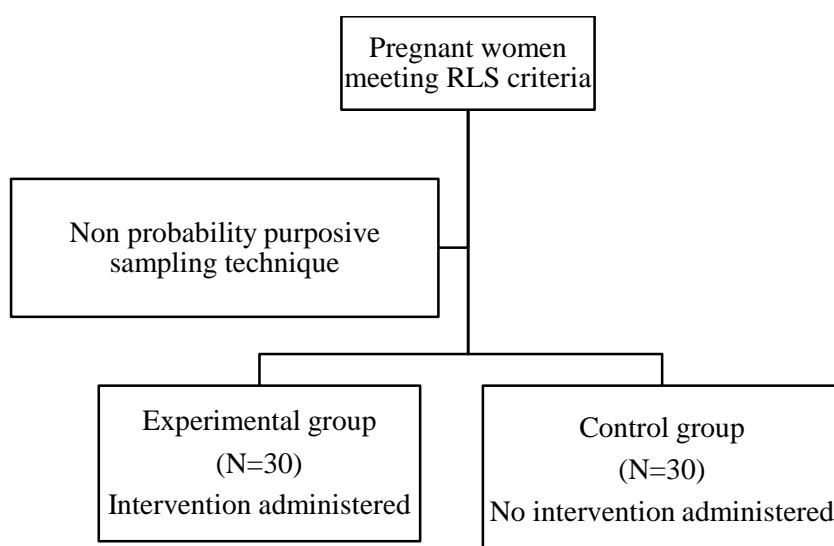
RESULTS

Out of 328 pregnant women, more than half of the pregnant women (58.2%) were classified as RLS positive and nearly half (41.8 %) of the pregnant women were RLS negative based on criteria defined by IRLSSG (Figure 2).

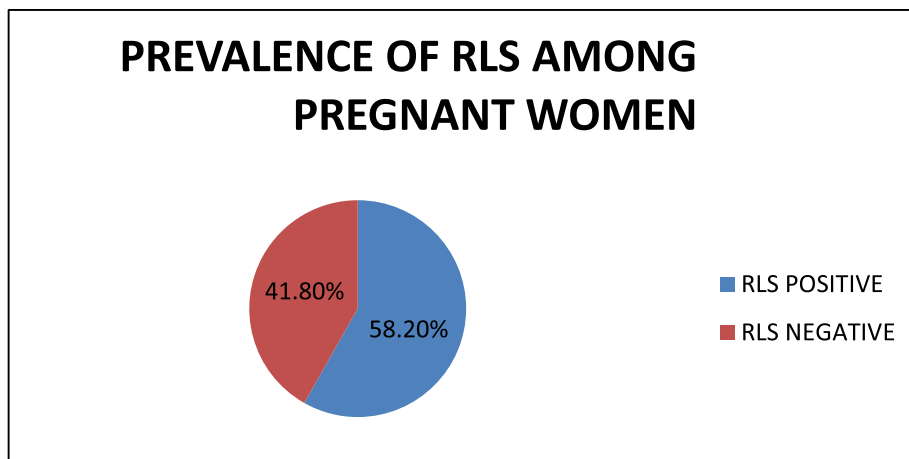**Figures 2**. Prevalence of RLS among Pregnant Women

Figure: Pie-diagram shows the screening of Restless leg syndrome among pregnant women Effect of Buerger Allen exercise on RLS severity score

In experimental group, most of (43.3%) of the pregnant women was between 18- 23 years, followed by (36.7%) 24-36 and 20% were between 37-45 years. Likewise more than half (53.3%) of the pregnant women were illiterate and one fourth (16.7%) of pregnant women had qualification of secondary level. None (100.0%) of the pregnant women were aware of RLS. Most (73.3%) of Pregnant women had no any history of present illness and only few (6.67%) of pregnant women had hypertension. RLS were more prevalence among pregnant women in the third trimester (46.6%) compared to the second (40.0%) or first trimester (13.3%) Table (1).

Table 1. Demographic variables of the pregnant women with RLS

Characteristics	Categories	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Age group (in years)	18-23	13	43.3	10	33.3
	24-36	11	36.7	12	40.0
	37-45	6	20.0	8	26.67
Education	Illiterate	16	53.3	18	60.0
	Literate	14	46.7	12	40.0
	Primary	9	30.0	4	13.3
	Secondary	5	16.7	8	26.7

History of presenting illness	Anemia	3	10.0	4	13.3
	Diabetes	3	10.0	2	6.7
	Hypertension	2	6.67	3	10.0
	None	22	73.3	21	70.0
Information regarding Restless leg syndrome	Yes	-		-	
	No	30	100.0	30	100.0
Use of iron	Yes	30	100.0	30	100.0
	No	-		-	

In control group, Most (40.0%) of the pregnant women were between 24-36,followed by (33.3%) 18- 23 years and 26.7% were between 37-45years. Likewise more than half (60.0%) of the pregnant women were illiterate and only few (13.3%) of pregnant women had qualification of   primary level. None (100.0%) of the pregnant women were aware of RLS. Most (70.0%) of Pregnant women had no any present history of illness and only few (6.7%) of pregnant women had diabetes. RLS were more prevalence among pregnant women in the third trimester (43.3%) compared to the second (36.7%) or first trimester (20.0%).Table (2)

Table 2. Classification of pregnant woman as per trimester

Characteristics	Category	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage %	Frequency	Percentage %
Trimester of pregnancy	First	4	13.3	6	20.0
	Second	12	40.0	11	36.7
	Third	14	46.7	13	43.3

In experimental group ,the pre-test mean score was 18.97 ,which was decreased to 16.33 on 8th week,14.63 on 8th week and 11.77 on 12th week .In contrast in control group the pre-test mean score was 20.63 ,which was decreased to 20.36 on 8th week, 20.28 on 8th week and 19.9 on 12th week. Table (3)

Table 3. Comparison of Mean and F value between the pre-test and post-test RLS severity rating score among pregnant women

Follow up time	Experimental Group (n=30)	Control group(n=30)
	Mean score	**Mean score**
Pre-test 1st day	18.97	20.63
Post test 4th week	16.33	20.36
Post test 8th week	14.63	20.28
Post test 12th week	11.77	19.9
Test R(ANOVA)	F=6.738 P>0.005	F=0.10 P<0.005

Table 3 showed that the mean RLS severity score level in both groups decreases at all times and the greater reduction within the experimental group had a higher level of statistical significance (F = 6.738; P < .005) group after performing Bueger Allen exercise as compare to the control group F=0.10;P>.005 with no intervention

DISCUSSION

Restless leg syndrome is neuron-sensory motor disorder characterized by unpleasant sensation deep inside the leg especially at bedtime. RLS is a hardly studied, probably under diagnosed condition. The present study revealed that the most of the pregnant women (58.20%) were classified as RLS positive and nearly half (41.80 %) of the pregnant women were RLS negative based on criteria defined by IRLSSG. A similar study conducted by Vahdat M et.al revealed that 17.8% women met the RLS diagnostic criteria, with most (74.7%) having RLS of moderate severity.[8] Likewise another study showed on prevalence of pregnant women with RLS 26.6% was found; 62.7% of these women had never experienced RLS symptoms prior to pregnancy.[9]

The present study showed that Majority (80%) of the pregnant women was between 18- 37 years and 20% were between 38-57years. Similar study conducted by Muammer, Yaşar and Bostan showed that the pregnant women's mean age was 28.11 ± 5.59 years.

The present study showed that most of the pregnant women with RLS were on third and second trimester. Likewise a Brazilian study reported that the prevalence on RLS were high in second and third trimester. [11]

The present study showed that there is significant reduction in symptoms of Restless leg syndrome (RM.ANOVA=6.738) at 0.05 level of significance in experimental group whereas there is no significant reduction in symptoms of Restless leg syndrome (RM.ANOVA=0.10) at 0.05 level of significance in control group. These finding were in accordance with study conducted by Aukerman showed that the exercise group had a significant improvement in symptoms compared with the control group (P = .001 for the IRLS severity scale and P < .001 for the ordinal scale). The study findings revealed that, the prescribed exercise program was effective in improving the symptoms of Restless leg syndrome.[12]The experimental study conducted by Andrea Maculano, Esteves revealed in response to aerobic exercises, the patient demonstrated a significant reduction in symptom of Restless leg syndrome (score 2 to 15). The aerobic exercise proved to be efficient in diminishing Restless leg syndrome.[6].

Overall, the findings of this study supported the hypothesis of research that bueger allen exercise is effective on reducing the symptoms of RLS among pregnant with RLS. Therefore caregiver and nurses are recommended to learn and use Buerger Allen exercise as a non invasive and non pharmacological approach that is easy to performed and almost cost free. In this study no complication was observed during exercise intervention. Therefore, the present study may be important in diagnosis of RLS and management with non pharmacological modalities to improve of quality of life of pregnant women with RLS. However further studies should conducted to rule

out the RLS and assess the efficacy of various types of exercise on various population.

CONCLUSION

The findings of this study concluded that a Buerger Allen exercise reduces the symptoms of RLS and in improving the quality of life among pregnant women. Therefore this exercise recommended to be used as one of the non pharmacological method.

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