Prevalence of Restless Leg Syndrome in Pregnancy

Nikita Naik[1], Zahara Polen[2]

[1]Intern, Smt. Kashibai Navale College of Physiotherapy, Pune - India
[2]Assistant Professor, Department of Cardiovascular and Respiratory PT, Smt. Kashibai Navale College of Physiotherapy, Pune, India

Corresponding Author: Nikita Naik

ABSTRACT

Background: Restless leg syndrome is a common sensory motor neurological disorder that is an unpleasant creeping sensation deep in lower limb causing an irresistible desire to move the leg and relieve the sensation. The most common sensations have been described as cramping, soreness, creeping or crawling sensation in the calves or feet which can vary in severity from mild discomfort to severe pain. Various studies have described the presence of Restless Leg Syndrome during pregnancy the causes of which may be iron deficiency, peripheral neuropathy, increased BMI and high number of previous pregnancies. Symptoms are more strong and frequently seen in third trimester and may disappear after parturition. The prevalence of restless leg syndrome in pregnancy in Indian population is unknown.

Methods: Observational prevalence study where women between the ages of 20-29years with gestational age 20-40 weeks (N=225) were screened for RLS. The study was performed at a tertiary hospital in Pune, India.

Results: 36 women (16%) among the 225 screened were found to have restless leg syndrome. Further their severity was graded, 23 (10.7 %), 12 (5.3%) and 1 (0.4%) had mild, moderate and severe symptoms respectively. Among the women who were diagnosed with RLS, 66.5% (24/36) had complaints of sleep disturbance

Conclusion: The study was conducted to find prevalence of RLS in pregnant women in their third trimester at a Tertiary hospital which was found to be as high as 16%. RLS was previously undiagnosed in this population. Further, severity of RLS was graded. It was observed that most of the women experienced mild symptoms. It was also found that, among the women who had RLS, majority (66.5%) of them experienced sleep disturbance.

Key words – Restlessness, RLS, unpleasant sensation, primigravida, sleep disturbance, pregnancy

INTRODUCTION

Restless leg syndrome is a common sensory motor neurological disorder that is described as an unpleasant creeping sensation deep in lower limb causing an irresistible desire to move the leg and relieve the sensation. [1] Restless leg syndrome is classified as two types primary and secondary. Primary restless leg syndrome is strongly influenced by genetic component while the secondary is caused by other associated conditions such as Parkinson disease, end stage renal disease or peripheral neuropathy. [2]

Therefore, Restless Leg syndrome has been described to commonly occur during Pregnancy. Pregnancy is a physiological phenomenon characterised by simultaneous development of both foetus and mother. [3] The foetal enlargement results in structural and physiological changes in the mother's body. The prevalence of restless leg syndrome in pregnancy is two to three times higher than non pregnant women. Influencing factors may be trimester, number of parity, increased BMI or a decrease in iron level. [4] Symptoms are more strong and are

frequently seen in the third trimester and mostly disappear after parturition. [5] During restless leg syndrome, movement of affected limb often abolishes the discomfort or relives the urge to move the limb. The symptoms get worse in the evening. [1]

The possible mechanisms that might contribute to the pathophysiology of RLS during pregnancy are iron deficiency, decrease dopamine, psychological or mechanical factors.

Studies have been done that iron and tetrahydrobiopterin are co-factor of tyrosine hydroxylase required for synthesizing dopamine, while folate plays important in regenerating tetrahydrobiopterin. Therefore depletion in folate can lead to depletion of dopamine. This may lead to dysfunction or abnormal function of nigrostriatal dopaminergic pathway. [6]

In addition to the above factors, neuropathy and radiculopathy during pregnancy might manifest symptoms of restless leg syndrome. [7] The growing size of foetus may strain the lumbo- sacral nerve root which may result in producing these symptoms which mostly resolve after delivery. [7]

A population based study in Germany reported that restless leg syndrome in pregnancy was also associated with number of children that the women had given birth to. Multiparous women with a history of two or three parities had an increased risk of restless leg syndrome as compared to nulliparous women. [8]

The symptoms of RLS are often neglected and remain undiagnosed in pregnant women. Studying the prevalence of this syndrome in and educating women regarding these symptoms is necessary. This might help avoid the complications associated with RLS.

The current study was carried out with the objectives to study prevalence of restless leg syndrome at a tertiary hospital in Pune, India and grade their severity using the IRLSG Scale.

METHODOLOGY
STUDY DESIGN- Cross sectional study
LOCATION OF STUDY- Tertiary Hospital in Pune, India
STUDY POPULATION- Pregnant women gestational age between 20-39 weeks
STUDY DURATION- 4 weeks
OUTCOME MEASURE - International Restless leg syndrome study group (IRLSSG) scale
SAMPLE SIZE -225 by formula $(p - p^2)z^2/d^2$
SAMPLING METHOD - Purposive sampling
Inclusion criteria and exclusion criteria -
In the current study, age of ANC mother included from $20 - 40$ years and gestational age was between $25 - 40$ weeks. Pregnant women having pre-existing RLS before pregnancy and women who are in first and second trimester will be excluded

PROCEDURE
The study was carried out after obtaining approval from the Institutional ethical Committee and the Obstetrics and Gynaecology Department. Subjects were selected according to the inclusion and exclusion criteria. Informed and written consent was taken from subjects after explaining the purpose of the study.

Symptoms related to RLS was asked to subject according to diagnostic criteria of RLS. [9]

In the subjects who were found to have RLS, the severity of their symptoms was graded by IRLSSG scale. The scale is validated under conditions of a face-to-face interview with the subject where clarification regarding the questions was made to the subject. [10]

OUTCOME MEASURES
DIAGNOSTIC CRITERIA OF RLS
Following is the diagnostic criteria for restless leg syndrome according to international restless leg syndrome study group.
1. An urge to move the legs usually but not always accompanied by or felt to be

caused by uncomfortable and unpleasant sensations in the legs.

2. The urge to move the legs and any accompanying unpleasant sensations begin or worsen during periods of rest or inactivity such as lying down or sitting.
3. The urge to move the legs and any accompanying unpleasant sensations are partially or totally relieved by movement, such as walking or stretching, at least as long as the activity continues.
4. The urge to move the legs and any accompanying unpleasant sensations during rest or inactivity only occur or are worse in the evening or night than during the day.
5. The occurrence of the above features is not solely accounted for as symptoms primary to another medical or a behavioural condition (e.g., myalgia, venous stasis, leg oedema, arthritis, leg cramps, positional discomfort, habitual foot tapping). [10]

INTERNATIONAL RESTLESS LEG SYNDROME STUDY GROUP (IRLSSG) SCALE

The Scale is primary instrument to determine the severity of restless leg syndrome. The IRLS consists of 10 questions rated from 0 to 4. The scale is validated under conditions of a face-to-face interview with the patient where clarifications regarding the questions can be made to the patient. The scale shows good test-retest properties (intra class correlation coefficient [ICC] = 0.87; P < 0.001), good inter-rater reliability performed under blinded conditions (ICC = 0.93 ; P < 0.001), good internal consistency with a Cronbach's alpha of 0.93. [10]

Scoring for this is scale is-
1-10 = mild;
11-20 =moderate;
21 -30=severe;
31-40=very severe.

RESULTS AND ANALYSIS

This study recruited 225 pregnant women, demographic data was taken such as age, BMI, HB, parity, single or twin gestation, among them 36 women (16 %) were found to have restless leg syndrome. Further their severity was graded, Mild - 23 (10.7 %), Moderate -12 (5.3%) and Severe - 1 (0.4%). Among the women who had RLS, (24/36) 66. 5% had sleep disturbance.

	AGE IN YEARS	GESTATIONAL AGE IN WEEKS	HB gm/dl
MEAN / STDEV	25.7 ± 3.59	31.4 ± 3.45	10.4 ± 1.25

DISCUSSION

Study was conducted to find prevalence of RLS in pregnant women in a Tertiary hospital. In 2006, study done by Pantaleo et al found that, prevalence of RLS was more common in pregnant women (44.5%) than in nulliparous women (33.7%).The possible mechanisms that might contribute to the pathophysiology of RLS during pregnancy are iron deficiency, decrease dopamine or other factors such as psychological factors and other mechanical factors. [4]

A population based German study reported that restless leg syndrome in pregnancy was also associated with number of children that the women had given birth to. Women with three, two or at least one child had an increase risk of restless leg syndrome as compared to nulliparous women. [8] Another study done by Maconi M Govani in 2004 found that growing size of foetus may strain on lumbo- sacral nerve root which may result in producing these symptoms which mostly resolves immediately after delivery. It is also considered that, high estrogen, increase prolactin and progesterone and reduction in HB values may trigger RLS in pregnancy period. However, hormones drop to pre pregnancy levels soon after delivery associated with resolution of RLS. [7]

In the current study, 225 pregnant women in their third trimester were screened for RLS, 36 women had RLS (16%) symptoms according to diagnostic criteria. Similar study was done in city of Riyadh (Saudi Arabia) total number of women enrolled - 517, all trimester were included. Prevalence of RLS was 21.3% (110/517) and commonly seen in 3 rd trimester than in second and first trimester. [11] Our study shows lower percentage of prevalence which may be due to inclusion of women, only in third trimester as compared to all pregnant women, as well as many primigravida. Although according to previous research RLS has been proven to peak in third trimester which may be due to weight gain, hormonal fluctuation as the symptoms are relived after the delivery. [11]

Further severity of the RLS was graded from mild to severe , mild – 63% , moderate 33.3% & severe – 16% among the RLS women in our study. Similar severity grading was found in RLS & QOL in pregnancy by Gazi University Institute of health science – Turkey. In total, 46.4 % of the pregnant women were found to meet diagnostic criteria for RLS, and among them, 5.2 % had mild RLS, 45.7 % had moderate RLS, 40.5 % had severe RLS, and 8.6 % had very severe RLS. [9]

In the current study, the scale which was used to grade RLS was the international RLS study group scale, included the component of sleep disturbance. Among the women who had RLS, 66.5% had sleep disturbance. As a result, women suffer from tiredness in day time, day time sleepiness and were unable to carry out daily household work. There can be multiple reasons for sleep disturbances but the main reason may be because of worsening of the RLS symptoms at night. In 2004, study done by Kathyrn concluded that pregnant women with severely disrupted sleep had longer labours hours and were 5.2 times more likely to have caesarean deliveries. [12]

Therefore early detection of RLS is necessary to prevent maternal discomfort and possible health risks such as pre -term babies and caesarean section, Prevention of sleep disturbances and focusing on improving in quality of life for RLS women. Adequate treatment and proper exercise should be planned for ANC population.

CONCLUSION

The study was conducted to find prevalence of RLS in pregnant women in a Tertiary hospital in pregnant women is 16%. The RLS was undiagnosed in this population previously. Further, severity of RLS was graded. It was observed that most of the women experienced mild symptoms' as compared to moderate and severe. It was also found that among the women who had RLS, majority of them experienced sleep as well as mood disturbance.

REFERENCES
1. Walters AS. Toward a better definition of the restless legs syndrome. The International Restless Legs Syndrome Study Group.Mov Disord.1995;10(5):634-642.
2. Park YM, Lee HJ, Kang SG, et al. Prevalence of idiopathic and secondary restless legs syndrome in Korean Women. Gen Hosp Psychiatry. 2010;32(2): 164-168.
3. Minar M, Habanova H, Rusnak I, Planck K, Valkovic PNeuro Endocrinol Lett Prevalence and impact of restless legs syndrome in pregnancy. Neuro Endocrinol Lett. 2013;34(5):366-371
4. Pantaleo NP, Pregnancy accounts for most of the gender difference in prevalence of familial RLS. Sleep Med . 2010;11(3):310-313
5. Taylor RN, Lebovic DI. Gardner DG, Shoback D, editors. The endocrinology of pregnancy. Greenspan's basic & clinical endocrinology. McGraw Hill; 2007. pp. 641–59
6. Fenton V, Cavill I, Fisher J. Iron stores in pregnancy. British Journal of Haematology - 1977 ;37(1):145-149
7. Manconi M, Govoni V, De Vito A, Economou NT, Cesnik E, Casetta I, Mollica G, Ferini-Strambi L, Granieri E Neurology Restless legs syndrome and pregnancy. Neurology .2004:63(6)1065-1069
8. Berger K, Luedemann J, Trenkwalder C, John U, Kessler C. Sex and the risk of

restless legs syndrome in the general population. Arch Intern Med. 2004;164(2): 196-202.

9. Akbaş P, Sözbir ŞY Restless legs syndrome and quality of life in pregnant women. Rev Assoc Med Bras (1992). 2019;65(5):618-624. Published 2019 Jun 3.

10. Walters AS, Frauscher B, Allen R, et al. Review of Severity Rating Scales for Restless Legs Syndrome: Critique and Recommendations. Mov Disord Clin Pract. 2014;1(4):317-324. Published 2014 Sep 30.

11. Khan M , Mobeireek N , Al-Jahdali Y, et al. The prevalence of restless leg syndrome among pregnant Saudi women. Avicenna J Med . 2018;8 (1) :18-23

12. Lee KA , Gay CL . Sleep in late pregnancy predicts length of labor and type of delivery. Am J Obstet gynecol. 2004;191(6) :2041-2046.

******