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FREQUENCY OF RESTLESS LEGS SYNDROME IN PREGNANT WOMEN OF LAHORE

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Abstract:

Restless legs syndrome is a neurological disease that affects the quality of life causing sleep disturbance, depression and anxiety. This study was conducted to assess the frequency of RLS in pregnant women of Lahore. This cross-sectional study was carried out at Gynecology department of Sir Ganga Ram Hospital Lahore, affiliated with Fatima Jinnah Medical University Lahore. Informed consent was taken and data was collected using non-probability consecutive sampling technique from 600 pregnant women who presented for ante-natal evaluation in OPD during the September 2019 to February 2020. Diagnosis was established according to 2012 updated International Restless Legs Study Group Diagnostic Criteria. Data was entered and analyzed using SPSS version 20. Mean age of women was 25.7 ± 3.3 years ranging from 20 to 36 years. Mean duration of pregnancy was 26.9 ± 5.6 weeks ranging from 7 to 37 weeks. One hundred and eighty eight of 600 (31.2%) women accomplished the diagnostic standard of RLS. Association of RLS with age and duration of pregnancy was found to be insignificant, $p = 0.432$, $p = 0.256$ respectively. RLS is common in pregnant women.

Keywords: Frequency, Restless legs syndrome, Pregnant, Age.

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INTRODUCTION:

Restless legs syndrome (RLS) is a neurological disease characterized as a very strong urge for the movement of legs and distressing feelings which mostly spikes during bedtime and rest periods¹. This disease may occur as idiopathic or in association with pregnancy, Parkinson disease, anemia, peripheral neuropathy and periodic leg movements of sleep². Restless legs syndrome (RLS) occurs in almost 10% of the common population and more frequently seen in women³. Ekbom explained the association between RLS and pregnancy in 1945⁴. Anemia has been stated as a predisposing determinant for RLS in the course of pregnancy recently^{5,6}. Diagnosis of restless legs syndrome (RLS) is made on the basis of all five essential symptoms according to 2012 updated International Restless Legs Study Group Diagnostic Criteria⁷.

In pregnancy RLS is usually noticed during third trimester^{8,9}. Only 15% of cases start in the first trimester¹⁰. RLS frequency tends to increase with the progression of pregnancy. In a survey by Faco et al, RLS frequency was 17.5% during the 13th week of pregnancy and 31.2% during the 30th week¹¹. Hormone changes and alteration of iron-folic acid metabolism are key factor for the pathogenesis of RLS during pregnancy. Estrogen rises during pregnancy particularly during the third trimester that suggests that it may be the cause of pathogenesis of RLS¹². Thyroid hormones concentration tends to rise during the third trimester. Negative relationship is found between thyroid hormones and dopamine levels that suggest they play a role in the etiology of RLS¹³.

Folic acid or iron deficiency disrupts dopamine synthesis negatively because during dopamine synthesis, tyrosine hydroxylase enzyme is required that uses iron and tetrahydrobiopterin as cofactors. Folate is required for the regeneration of tetrahydrobiopterin. During the course of pregnancy, the consumption of iron and folic acid or the dilutional effect of expanding blood volume may decrease the level of these elements¹⁴. It is studied that initial phases of pregnancy and previously low levels of ferritin may be play a role for RLS development¹². Sleep problems are commonly seen during pregnancy¹⁵. Pain, irritation and recurrent urination are responsible sleep disturbances¹⁶. It is observed that RLS, excessive snoring, difficulty in sleeping soundly, periodic leg movements and sleep respiratory diseases are commonly observed during the course of pregnancy and cause low quality of sleep¹⁵⁻¹⁷. Sleep disorders could be related to pregnancy associated problems like gestational diabetes and hypertension, preeclampsia and premature

delivery¹⁶. Ramirez et al notified that RLS was more common in pregnant women with preeclampsia¹⁸.

Pharmacological intervention is advised for patients whose symptoms persist with conservative approaches^{12,19}. Oral iron is suggested if level of ferritin is less than 75 µg/L¹⁹⁻²¹. In women having refractory RLS during their second or third trimester, intravenous iron replacement can be done if ferritin levels are less than 30 µg/L¹⁹. In Pakistan frequency of RLS during pregnancy is 30%²². The goal of this study was to find out frequency of RLS during pregnancy.

MATERIALS AND METHODS:

Setting: Gynaecology department of Sir Ganga Ram Hospital, affiliated with Fatima Jinnah Medical University Lahore.

Study design: Cross sectional study

Duration: September 2019 to February 2020.

Sample Size: Sample size of 600 was estimated with 95 % confidence interval and 5 % margin of error and taking frequency of RLS i.e. 13.5% in pregnant women⁸.

Sampling Technique: Non-probability consecutive sampling.

Sample Selection: Inclusion Criteria Pregnant women, willing to publish their information.

Exclusion Criteria Anemia (Hb less than 10 g/dl)²³, Diabetes mellitus, peripheral neuropathy, chronic kidney disease, Parkinson disease.

Data Collection Procedure: After obtaining the informed consent, 600 pregnant women who landed in OPD were evaluated. Diagnosis of restless legs syndrome (RLS) was established on the basis of all five essential symptoms according to 2012 updated International Restless Legs Study Group Diagnostic Criteria⁷. The investigator was present while the filling of proforma to explain any misunderstanding the pregnant women had about the questions. The investigator noted the women's responses on the form to prevent any bias on conclusion of RLS.

Data Analysis: Data was entered and evaluated using SPSS version 20. Chi-square test was applied to find out any significant variability in frequency of RLS among pregnant women of age < 30 and ≥ 30 years, and women with duration of pregnancy ≤ 20 and > 20 weeks taking $p \leq 0.05$ as significant.

Operational Definitions: **Pregnancy** Female having raised serum beta HCG level and fetus localized in uterine cavity on ultrasonography.

Diagnostic Criteria of Restless Legs Syndrome The diagnosis of RLS is made if patient is suffering from all of the following symptoms, (1) feelings of crawling in the extremities. (2) An irresistible urge for movement of limbs, mostly the legs. (3) These unpleasant feelings get worse by periods of rest or inaction. (4) Symptoms are alleviated by walking

or stretching. 5) Absence of any alternative cause of these symptoms including chronic kidney disease, anemia, peripheral neuropathy and parkinson disease.

Hypothesis: RLS is common during pregnancy.

RESULTS:

Total 620 pregnant women were called to take part, out of which 600 were included in this study. Twenty women refused to participate in the study. Mean age of women was 25.75 ± 3.28 years ranging from 20 to 36 years. Mean duration of pregnancy was 26.89 ± 5.99 weeks ranging from 7 to 37 weeks. Mean hemoglobin of pregnant women was 10.8 g/dl. 188(31.2%) women were found to be suffering from RLS. Out of these, 160 women were <30 years of age and 28 were ≥ 30 years of age. In this study, age has insignificant association with RLS ($p= 0.432$). Among them, 28 women were

having duration of pregnancy ≤ 20 weeks and 160 were having > 20 weeks. But there was insignificant association between RLS and duration of pregnancy ($p= 0.256$).

DISCUSSION:

There are few published studies on RLS in pregnant worldwide. This study was done to find out the frequency of RLS during pregnancy. Results of this study prove that RLS is common (frequency of 31.2%) in pregnant women. Mean age of women was 25.75 ± 3.28 years and no significant association found between age and RLS ($p= 0.432$). Mean duration of pregnancy was 26.89 ± 5.99 weeks and there was insignificant association between duration of pregnancy and RLS ($p= 0.256$). The reported frequency of RLS in pregnant women is 13.5-34% in different countries^{8,9,11,22,24-27}.

Table-1: Frequency of RLS during pregnancy in different countries.

Study	Year of Publication	Country	No. Participants	Frequency of RLS (%)
Alves DA et al ⁸ .	2010	Brazil	524	13.5 %
Suzuki K et al ²⁴ .	2003	Japan	16528	20 %
Tunas T et al ²⁵ .	2007	Turkey	146	21 %
Manconi M et al ²⁶ .	2004	Italy	642	26 %
Sikandar R et al ²² .	2009	Pakistan	271	30 %
Facco FL et al ¹¹ .	2010	USA	189	31.2 %
Neau JP et al ⁹ .	2010	France	186	32 %
Uglane MT et al ²⁷ .	2011	Norway	251	34 %
This study		Pakistan	600	31.2 %

In this study there were three main factors that contribute to the variation in frequency of RLS in pregnant women, first the heterogeneity of survey populations i.e. genetic variations, second the application of various diagnostic criteria of RLS and differences in the exclusion of other circumstances which may initiate RLS and evolution of women in various phases of pregnancy, third and the most important is prevalent iron deficiency anemia in developing countries like Pakistan. Low hemoglobin level, deficiency of iron and serum calcium level, all have been related to RLS; but recent studies are not able to prove these earlier findings²⁸. However, we concluded that pregnant women frequently from RLS as they were prone to alterations in hormones and iron-folate metabolism^{12,14}.

CONCLUSION:

This study proves high frequency of RLS in pregnant women in Lahore.

RECOMMENDATIONS:

Regular assessment and awareness in pregnant women regarding RLS is recommended as early

diagnosis and efficient management can improve quality of life

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