ORIGINAL RESEARCH

Spectrum of Restless Leg Syndrome from a Tertiary Care Hospital in Eastern India

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Received on: 15 May 2024; *Accepted on:* 10 June 2024; *Published on:* 06 July 2024

Abstract

Restless legs syndrome (RLS), also known as Willis-Ekbom disease, a neurological sensorimotor disorder characterized by irresistible restlessness and urge to move mainly the legs, often accompanied by unpleasant sensations. It is more common in the elderly. It can be primary or idiopathic and secondary to various systemic conditions like iron deficiency anemia, type 2 diabetes mellitus, vitamin B12 deficiency, uremia, radiculopathy, etc. Restless legs syndrome is a clinical disorder without any specific biological marker which affects sleep hygiene, and quality of life and compromises working hours of patients. It is frequently encountered but often overlooked. If properly diagnosed in appropriate time, it can be easily managed.

Keywords: Restless leg syndrome, Sensorimotor disorder, Willis-Ekbom disease.

Bengal Physician Journal (2024): 10.5005/jp-journals-10070-8051

Introduction

Restless legs syndrome (RLS), also recognized as Willis-Ekbom disease, a neurological sensorimotor disorder, was introduced by Sir Thomas Willis in the 16th century.[1] The cardinal features are, as described by Willis, "an irresistible restlessness and strong urge to move mainly the legs, often accompanied by unpleasant sensations." Over the years, RLS has been clinically redefined significantly, but its essential features remain unchanged, just as Willis stated.[2] The year 1995 saw the formation of International Restless Legs Syndrome Study Group (IRLSSG), where further light was shed upon the diagnostic criteria of RLS.[3]

Restless legs syndrome has multiple cardinal features including restlessness, strong and irresistible urge alongside paresthesia with distress-like sensations in the lower limbs especially during rest, ailments occurring predominantly in the evening. Restless legs syndrome not only affects the lower limbs of the body but also other regions, namely, neck, face, mouth, genitals, arms and abdomen.[4–8] It has a varying clinical presentation determined by genetic, environmental as well as medical factors.

Primarily idiopathic, RLS might as well be secondary to pregnancy or other reversible systemic conditions such as iron deficiency anemia and chronic kidney conditions.[9,10] The exact pathogenesis of RLS remains unknown, however, dopaminergic dysfunction in CNS and brain iron dysregulation appears to play a vital role in the occurrence of the disease. Genetic factors include 6 different genes which are *BTBD9, MEIS1, PTPRD, MAP2K5, SKOR1*, and *TOX3*.[11,12] Familial RLS indicates autosomal dominant pattern of inheritance.[13]

Restless legs syndrome is diagnosed mainly on the basis of the history of the patient and examination of the central nervous system to rule out differential diagnoses. A definite diagnosis of RLS is made if all the following criteria are satisfied. The criteria have been published by the International RLS Study Group.

- *Urge to move legs with unpleasant sensations:* People with RLS feel an urge to move their legs, which is often accompanied by tingling, crawling, or aching sensations. These sensations are typically felt deep within the legs.
- *Worsening during rest or inactivity:* The symptoms of RLS usually begin or intensify during periods of rest or inactivity, such as sitting or lying down. This is particularly noticeable in the evening or at night.
- *Relief with movement:* Movement, such as walking or stretching, provides temporary relief from the discomfort and the urge to move the legs. The relief is typically immediate but may be short-lived.
- *Evening or night-time prevalence:* The symptoms of RLS are usually more severe in the evening or at night, making it difficult for affected individuals to fall asleep or stay asleep. This can lead to significant sleep disturbances.
- *Not solely attributable to other conditions:* The symptoms are not solely accounted for by another medical condition (e.g., arthritis, leg cramps) or a behavioral condition.

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How to cite this article: Maiti A, Siddhanta S, Mondal R, *et al*. Spectrum of Restless Leg Syndrome from a Tertiary Care Hospital in Eastern India. Bengal Physician Journal 2024;11(2):73–75.

Source of support: Nil

Conflict of interest: Dr Sattik Siddhanta is associated as the Associate Editorial Board member of this journal and this manuscript was subjected to this journal's standard review procedures, with this peer review handled independently of this editorial board member and his research group.

Materials and Methods

The study was an observational cross-sectional investigation carried out in the general medicine department of a tertiary care hospital in eastern India.

The study was carried out during the last quarter of 2022 (October 22–December 22) and the study population comprised of a total of 54 adults, suffering from restless leg syndrome, admitted in the general medicine ward of IPGMER and SSKM Hospital.

Objective

- To determine the underlying etiological factors.
- To examine the enhancement in quality of life following treatment of the reversible etiological factors.

Inclusion Criteria

- 2012 Revised International Restless Leg Syndrome Study Group Diagnostic Criteria.

Exclusion Criteria

- Leg cramp
- Local leg injury
- Arthritis
- Leg oedema
- Venous stasis
- Habitual foot tapping
- Myalgia
- Patients who did not or could not give consent to participate in the study

Investigations

The following investigations were done to determine the etiology and exclude any underlying neurological condition:

- Routine hematological and biochemical test.
- Serum iron profile.
- Serum vitamin B12 estimation.
- Blood glucose estimation.
- EMG and NCV studies.
- MRI Lumbosacral spine.

The Ethics and Scientific Review Committee of the Institute granted approval for the study and informed consent from the patients had been taken following which data collection was started.

Data analysis was done using MS Excel and SPSS 20 (IBM).

Results

A total of 54 patients (mean age: 60.33 years ± 6.54 years) were included in the study, 32 (59.25%) of whom were females, and the rest 22 (40.74%) were males. The youngest age of presentation was 33 years and 4 months.

Statistical analysis suggests that the prevalence of RLS increase in older age. While there were mere 8 patients (14.81) under the age of 45, patients >60 years of age comprised of more than half of the study population (51.85%).

Almost 4/5th of the study population, that is, 44 patients (81.48%) had an underlying systemic condition(s) like iron deficiency anemia, vitamin B12 deficiency, uremia, type 2 DM. Primary/idiopathic RLS cases were meagre 18.51%.

Blood investigations and radiological studies indicated that iron deficiency anemia is the most common underlying etiology. Serum iron deficiency was seen in 24.07% (14 patients) of the study population. Type 2 DM (small fiber neuropathy) surfaced to be the 2nd most common etiological factor with 1/5 of the study population (20.37%) showing raised blood sugar levels. 16.67% of the study population (11 patients) suffered from lumbosacral radiculopathy, while 9.25% (5 patients) had raised blood urea levels indicating underlying renal dysfunction.

Vitamin B12 deficiency and Parkinson's disease each were noted in 5.56% (3 patients) of the study population.

Discussion

According to epidemiological research, RLS affects 7–10% of adult populations overall in Europe and America.[14–17] The risk of RLS development rises with age, with women being more susceptible to the illness than males.[18] Additionally, RLS symptoms are more common in persons over 40; some studies estimate that as much as 18–23% of senior citizens experience RLS symptoms.[19,20] Studies generally report that the prevalence of RLS increases with age.[21] Contrary to our study, one had suggested that RLS prevalence falls after 64 years of age.[22] Although RLS is very common, most patients only have mild to moderate symptoms; just 1–3% have severe, frequent symptoms.[17,22] The prevalence is low in Asia (1.0–7.5%) and Africa.[23] According to a recent meta-analysis on RLS epidemiology, the prevalence in the general population is likely between 5 and 8%.

Conclusion

Restless leg syndrome presents a clinical challenge, lacking specific biological markers, yet significantly impacting sleep quality, daily functioning, and work productivity for those affected. Despite its common occurrence, it often goes undetected. However, timely and accurate diagnosis can facilitate easy and effective management of this condition.

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