

# Impact of Restless Leg Syndrome on Fatigue and Quality of Life Among Hemodialysis Patients

Saad Ali Nasir<sup>1\*</sup>, Fareeha Amjad<sup>1</sup> and Sana Rafaqat<sup>1</sup>

<sup>1</sup>University Institute of Physical Therapy, Faculty of Allied Health Sciences,  
The University of Lahore, Lahore, Pakistan

\*Saadnasir191@gmail.com

## Highlights:

- Contribution of Restless Leg Syndrome to fatigue and low quality of life
- Three questionnaires were used for this survey
- RLS is frequent in patients with hemodialysis patients and associated with fatigue and poor quality of life

## Abstract:

Restless Legs Syndrome (RLS) is a sensory-motor sleep disorder which is very common in hemodialysis (HD) patients. It is called also as uremic RLS and it is affecting almost 30% of the HD population.

## Objective:

To find out impact of Restless Leg Syndrome on fatigue and quality of life in patients of hemodialysis.

## Methodology:

131 hemodialysis patients (male, female) were approached from different hospitals in Lahore. Demographic data of the patients were collected. Questionnaires were included Fatigue Severity Scale, Restless Legs Syndrome Questionnaire (Rating Scale) and health quality questionnaire SF-12<sup>®</sup>. All responses entered in SPSS version 21.

## Results:

In this survey SF12 was used to find about health related quality of life in patients with RLS and undergoing hemodialysis and fatigue was observed in (n-75%) patients with exercise, (n-34%) reported fatigue interference with work and (n-22%) reported fatigue was constant problem. Quality of life was overall poor as (n-72%) patient's complaint that they cannot do any kind of work with full focus and 34% reported their moderate activity level was limited.

## Conclusions:

RLS was frequent in patients with hemodialysis. It had an association with fatigue and poor quality of life. As hemodialysis patients spend most of their time on bed RLS has negative impact on the sleep. Health Related Quality Of Life affects both physical and mental health.

## Key Words:

Restless Leg Syndrome, Fatigue, low quality of life, Hemodialysis patients

## Introduction:

Restless legs syndrome (RLS) is a sensory-motor sleep disorder which is very common in hemodialysis (HD) patients. Majority of patients complained about pain and they feel like they are unable to move their legs which disturbs their daily routine. The movement pattern is automatic dorsiflexion of foot and lower leg, that endures 2 to 5 seconds.<sup>1-5</sup> RLS is described in two types primary and secondary. Primary RLS is because of family history and its minimum duration is 45 years. While secondary RLS might be due to rheumatoid arthritis, pregnancy and some neuropathies. In that review, critically some enhancements were seen in self-satisfaction level, rest quality and discouragement score of practicing HD patients.<sup>6</sup> Mainly symptoms include pain, tingling sensation, and they feel uncomfortable that may aggravates pain. Patients of HD have altered sleep cycle as compare to normal individuals. This may cause main issue of fatigue among HD patients. A few investigations have demonstrated that RLS is progressively common in females. Bergar et al detailed RLS influenced females 10 times as compared to males; and they demonstrated that it effect more among females and cause

disability<sup>8</sup>. And increased amount of estrogen for example in gestational females and iron deficiency may be one of the major causes. Some other main factors including medications intake including dopamine opponents, antidepressants, and serotonin reuptake inhibitors, excess caffeine or alcohol consumption, and nicotine may compound side effects<sup>9, 10</sup> Pathophysiology of the RLS is as not cleared yet. In this respect, there are two noteworthy hypotheses: iron insufficiency and focal sensory system (CNS) dopamine lopsidedness. First generation of RLS is much more at risk rather than general population furthermore some previous researches showed a relationship between RLS and hereditary factors<sup>11</sup>. Other than that RLS relationship with serum ferritin levels is not cleared yet but its impact on pregnancy is cleared by some previous authors. Patients' side effects significantly become better by dopamine agonist (even in low dosages and in the primary portion) and dopamine antagonist may enhance the adverse effects.<sup>12, 13</sup> Weakness, pain, fatigue, altered sleep cycle are main symptoms of RLS. Other than that it may cause irritability and mood swings. However, in the course of the most recent years, RLS has developed as a typical, yet additionally severe, disorder<sup>14,15</sup> This study is not conducted in Pakistan earlier, as its conducted on restless leg syndrome in hemodialysis patients only and in this it is specific to fatigue level and quality of life in hemodialysis patients, through this we can cofounded sleepiness, anxiety, depression in daily routine.

### Methodology:

131 hemodialysis patients (male, female) were approached from different hospitals in Lahore Demographic data of the patients were collected. After that they were given three different questionnaires included Fatigue Severity Scale, Restless Legs Syndrome Questionnaire (Rating Scale) and health quality questionnaire SF-12® to measure the quality of fatigue, restless leg syndrome rating and health quality of life

respectively. All responses were entered in SPSS version 21 for results evaluation.

### Results:

Data was collected from different hospitals. Total sample size was 131. There were (n-69) males and (n-62) females. The mean value of age was 47.2 years. Among all participants (n-42) patients reported moderate RLS discomfort, (n-32) reported severe discomfort and (n-23%) complaints about mild discomfort (Table 1,2). Other than that (n-67) patients claimed that their sleep is effected severely and (n-41) complaint moderate sleep disturbance. RLS severity level on average day was complaint by 12 participants that it is severe and 64 complaint its moderate. Severe mood swings were observed in 63 patients and 34 complaints they were very severe. Exercise with fatigue is reported mild in 75 patients and severe in 33 (Table 1).

Among total participants 29% patients reported moderate impact of RLS, 18% reported mild and 23% patients were suffering severely. Fatigue was observed in 75% patients with exercise, 34% reported fatigue interference with work and 22% reported fatigue is constant problem. Quality of life was overall poor as 72 % patient's complaint that they cannot do any kind of work with full focus and 34 % reported their moderate activity level was limited (Table 3).

PSS	Percentage (%)
1.00	8.4
1.22	9.2
1.44	8.4
1.56	9.2
1.78	13.0
1.89	17.6
2.33	8.4
2.67	17.6
2.78	8.4

**Table I: Fatigue Severity Scale Scoring (n = 131)**

RLS	Percentage (%)
135.00	8.4
171.00	16.0
207.00	8.4
243.00	6.9
252.00	9.2
261.00	8.4
270.00	8.4
279.00	8.4
288.00	8.4
324.00	9.2
327.00	8.4

**Table 2: Restless Leg Syndrome Scoring (n = 131)**

QOL	Percentage (%)
276.00	26.0
312.00	16.0
336.00	40.0
372.00	8.4
384.00	9.2

**Table 3: Quality of Life (n = 131)**

### Discussion:

The previous studies showed that RLS is common in hemodialysis patients and it is related to fatigue, low quality of life and sleep. Moreira had done research in 2008 and while relating sleep with RLS stated that the patients with multiple sclerosis worse scores in severe sleep domains such as sleep duration, sleep quality and sleep latency<sup>16</sup>. While in this study patients with hemodialysis also reported low sleep quality. Sleep quality was associated with fatigue in previous studies. Since the hemodialysis patients are frequently crippled and they invest the greater part of their energy in dialysis beds, they are normally latent. We used the fatigue severity scale questionnaire to find the fatigue level in hemodialysis patients and in this study using the fatigue questionnaire patients with hemodialysis in which 34 % reported that motivation is lower when they are fatigued, 75% reported exercise brings on my fatigue 33% reported that they are easily

fatigued, 43% reported fatigue interferes with my physical functioning, 22% reported fatigue causes frequent problems for me. 41% reported my fatigue prevents sustained physical functioning, 56% reported Fatigue interferes with carrying out certain duties and responsibilities, 54 % reported Fatigue interferes with carrying out certain duties and responsibilities and 34% reported Fatigue interferes with my work, family, or social life. RLS was increasingly present in females, RLS can happen in pregnancy and it may identify with the largest amounts of female sex hormone level, or mental changes; the present investigation results were like the clarifications of a few different investigations on female as a major factor for RLS. The previous study done by Abets et al<sup>17</sup> used SF-36 questionnaire to find quality of life and result suggested the substantial impact on QOL. The information additionally demonstrate that patients with RLS are prone to have issues with uneasiness or discouraged emotions, as estimated by the psychological well-being and MCS scales. Our information mimic other research recommending that men with RLS are probably going to encounter mental wellbeing problems.<sup>18</sup> While in this survey we used SF12 to find about health related quality of life in patients with RLS and suffering with hemodialysis and we find that 34 % reported that they cannot perform moderate activities, 43% reported they have difficulty Climbing several flights of stairs, 57% reported that they accomplished less than they would like 72 % reported that they were limited in any kind of activities 96% reported as yes that they didn't do work or other activities as carefully as usual 78% reported all of the time during the past 4 weeks. Further studies are recommended with large sample size and data collected from multiple centers. Male to female ratio should be same in order to obtain generalized results for both genders. Future research ought to incorporate an appraisal of comorbidities to guarantee that the distinctions between the regularizing populaces and RLS

patients are not because of different components. One avenue of future research would be to assess the relationship between RLS and depression in longitudinal studies.

### Conclusions:

RLS was frequent in patients with hemodialysis patients and associated with fatigue and poor quality of life. Health related quality of life affects both physical and mental health. As hemodialysis patients spend most of their time on bed RLS has negative impact on the sleep, fatigue and quality of life.

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