

## Restless leg syndrome and liver cirrhosis: Is it common?

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### Abstract

**Background:** Restlessness is quite common in cirrhosis patients.

**Objective:** To determine the frequency of restless leg syndrome in cases presenting with liver cirrhosis.

**Methodology:** Cross-sectional study. Settings: Sheikh Zayed Hospital, Rahim Yar Khan. Duration: 1st July 2018 to 31st December 2018. In this study, the cases of age more than 30 years irrespective of the gender and cause of liver cirrhosis were selected. Liver cirrhosis was labelled on the presence of hepatic parenchymal change on USG, its size less than 12 cm with or without portal vein dilatation more than 10 mm diagnosed for at least 1 or more years. Restless leg syndrome was assessed as present or not on the basis of John Hopkins Questionnaire date was analyzed by using SPSS 23.

**Results:** In the present study, 300 cases with liver cirrhosis with mean age of the subjects,  $47.39 \pm 7.67$  years. Restless leg syndrome was seen in 84 (28%) of the cases. This was seen in 47 (31.97%) males and 37 (32.74%) females with  $p=1.0$ . Restless leg syndrome was seen in 44 (36.67%) cases with duration of cirrhosis of 5 years or more with  $p=0.16$ . It was more seen in cases with child pugh class C affecting 52 (31.90%) as compared to 32 (23.36%) cases in class B with  $p=0.31$ .

**Conclusion:** Restless leg syndrome is common and seen in almost every 4<sup>th</sup> case and is found higher in cases with cirrhosis of 3 or more years and in cases with child pugh class C.

**Key words.** Cirrhosis, Restless leg syndrome, Child pugh class

### Introduction

Liver cirrhosis is one of the formidable disease and its prevalence is getting higher all across the globe especially in developing countries like South East Asia due to rise in trends of hepatitis B and C infection. There is re-emergence of this in the developed countries due to hepatitis C infection, Human immune deficiency virus (HIV), increased alcoholism trends and hepatotoxic effect of various drugs.<sup>1,2</sup>

It is an irreversible damage to the liver due to ongoing chronic inflammation and can result in wide array pathological and electro-physiological changes in the body that can impact in number of ways.<sup>3</sup> The most common complications include, upper gastrointestinal (GI) bleeding, portal hypertension, ascites, porto-systemic encephalopathy (PSE), hypo-albuminemia, caput medusa, and palmar erythema.<sup>2,3</sup>

Restless leg syndrome (RLS) is an uncommon presentation of its complications and non-specific to liver cirrhosis only.<sup>4</sup> It can be causes by various underlying causes.<sup>5-9</sup> It is defined as in-voluntary, agitated and uncontrolled urge to move the legs because of abnormal sensations of numbness and

agitation especially in lower parts of the legs. There are number of underlying theories to explain this and the most popular one include the altered levels of serotonin in the corticospinal tract.<sup>10-12</sup> The diagnosis is made on the classical history; however, there are number of scoring systems that are devised to label it and these include clinical criteria by Allen and also the most widely used John Hopkins Questionnaire. The prevalence of RLS is highly variable and incidence is reported to 5 to 50% of the cases all across the world.<sup>4-7</sup>

The objective of this study was to determine the frequency of restless leg syndrome in cases presenting with liver cirrhosis.

### Methodology

This cross-sectional study was conducted at Sheikh Zayed Hospital, Rahim Yar Khan between 1<sup>st</sup> July to 31<sup>st</sup> December 2018, in which cases were selected via non probability consecutive sampling of age more than 30 years irrespective of the gender and cause of liver cirrhosis. Liver cirrhosis was labelled on the presence of hepatic parenchymal change on USG, its size less than 12 cm with or without portal vein dilatation more than 10 mm diagnosed for at least 1

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or more years. The cases with neurological deficit, previous history of stroke, DM or vitamin deficiencies were excluded from this study. These cases underwent detailed clinical and other laboratory investigations like liver function tests, coagulation profile and clinical examination regarding orientation to label child pugh class. Restless leg syndrome was assessed as present or not on the basis of John Hopkins Questionnaire. The data was processed by the help of SPSS version-23.0. Effect modifiers were stratified and post stratification chi square test was applied and p-value  $\leq 0.05$  was taken as significant.

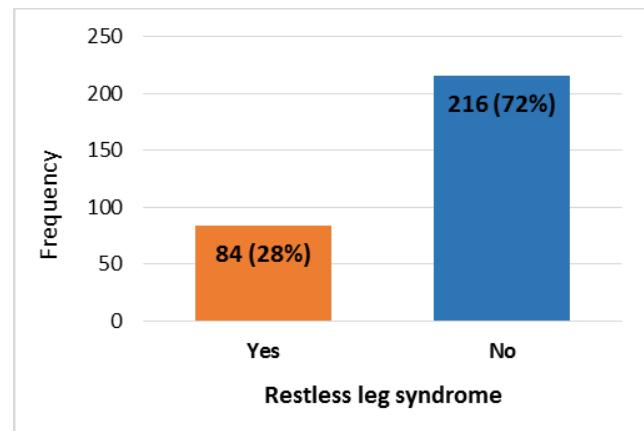
## Results

In the present study 300 cases with liver cirrhosis were selected. The mean age of the subjects was  $47.39 \pm 7.67$  years and mean duration of cirrhosis was  $4.11 \pm 1.69$  years. (Table 1) There were 187 (62.33%) males and 163 (54.33%) cases in child pugh class C as in table I.

**Table I: Demographics of study subjects (n=300)**

Variable	Mean $\pm$ SD	Range
Age (year)	$47.39 \pm 7.67$	30-70
Weight (kg)	$69.13 \pm 11.53$	40-95
Duration of cirrhosis (year)	$4.11 \pm 1.69$	1-15
	Number	Percentage
Male	187	62.33
Female	113	37.67
Child pugh class B	137	45.67
Child pugh class C	163	54.33

**Figure I. Restless Leg Syndrome= 300**



Restless leg syndrome was seen in 84 (28%) of the cases (Figure I). This was seen in 47 (31.97%) males and 37 (32.74%) females with  $p = 1.0$  as in table II. Restless leg syndrome was seen in 44 (36.67%) cases with duration of cirrhosis of 3 years or more with  $p = 0.16$  (table II). It was more seen in cases with child pugh class C affecting 52 (31.90%) as compared to 32 (23.36%) cases in class B with  $p = 0.31$  as in table II.

**Table II: Restless leg syndrome VS gender, duration of liver cirrhosis and child pugh class. (n = 300)**

Gender	Restless leg syndrome		Total	P value
	Yes	No		
Male	47 (31.97%)	140 (68.03%)	187	1.0
Female	37 (32.74%)	76 (67.26%)	113	
Total	84 (28%)	216 (72%)	300	
Duration of cirrhosis	Restless leg syndrome		Total	P value
	Yes	No		
< 3 years	40 (22.22%)	140 (77.78%)	180	0.16
= 3 years	44 (36.67%)	76 (63.33%)	120	
Total	84 (28%)	216 (72%)	300	
Child Pugh Class	Restless leg syndrome		Total	P value
	Yes	No		
B	32 (23.36%)	105 (76.64%)	137	0.31
C	52 (31.90%)	111 (68.10%)	163	
Total	84 (28%)	216 (72%)	300	

## Discussion

Liver cirrhosis has number of complications and associated co morbid conditions due to complex nature of metabolism carried out by liver and causing diverse clinical symptoms and response of the body. Neuro-kines are affected largely by liver cirrhosis and lead to disinhibited response with GABA receptors and restless leg syndrome due to altered serotonin levels.<sup>8,9,13</sup> In the present study, Restless Leg Syndrome was observed in 84 (28%) of 300 cases suffering from liver cirrhosis. These results were slightly higher as compared to the findings of the previous studies. Matsuzaki T et al carried out a similar study on 149 cases of cirrhosis and it was

seen that, RLS was noted in 16.8% of the cases.<sup>10</sup> Even lower results were found on assessment of RLS in a study done by Takahashi M et al and it was observed in 9.2% of the cases.<sup>11</sup> This lower incidence in other studies can be due to difference in the inclusion criteria as we included the cases with cirrhosis as compared to non cirrhotic liver diseases.

Falup-Pecurariu C et al, carried out a similar study as well and compared the prevalence of Restless leg syndrome in cases with chronic liver disease and healthy control population and it was observed that the prevalence in CLD was 35 (38.88%) cases and 11 (12.22%) in normal cases with a significant difference with p value < 0.05.<sup>12</sup> In the present study, there was no difference found in terms of RLS and gender where this was seen in 47 (31.97%) males and 37 (32.74%) females with p= 1.0. This result was slightly difference from previous data where female predominance was seen.<sup>12,13</sup> In a study, this ration was observed as 1.8:1.<sup>13</sup> Restless leg syndrome was seen in 44 (36.67%) cases with duration of cirrhosis of 3 years or more with p= 0.16 and moreover, it was more seen in cases with child pugh class C affecting 52 (31.90%) as compared to 32 (23.36%) cases in class B with p= 0.31. A previous study has shown that there was linear association with development of RLS and duration of CLD in a study, conducted by Goel A et al.<sup>9</sup> They further described that RLS was seen in 8.69% cases with child pugh class C, 2.56% in class B and 8.47% in class A with over all prevalence of 6.6% in CLD and 0.6% in normal healthy population.<sup>9</sup>

## Conclusion

Restless leg syndrome is common and seen in almost every 4<sup>th</sup> case and is found higher in cases with cirrhosis of 3 or more years and in cases with child pugh class C.

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