

The Prevalence of Restless Legs Syndrome in Patients with Inflammatory Bowel Disease

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ABSTRACT

Background:

The aim of this study was to examine the prevalence of restless legs syndrome amongst patients with inflammatory bowel disease.

Materials and Methods:

Participants were 384 patients aged more than 18 years who had a history of admission with a diagnosis of inflammatory bowel disease (IBD) in the gastroenterology hospital in Guilan, Iran. The diagnosis of restless legs syndrome (RLS) was confirmed based on DSM-V, and its severity was identified using the International Restless Legs Scale (IRLS) questionnaire. The participants were assigned into two groups; patients with a history of IBD and RLS (n = 61) and IBD without RLS (n = 323). The prevalence of RLS, as well as demographic variables, have been analyzed between groups using the Chi-square test.

Results:

The prevalence of RLS was 15.9%. It was significantly higher in; women ($p = 0.042$), primary/secondary, and high school graduates ($p < 0.0001$), married ($p = 0.011$), and retired ($p = 0.021$) patients. The prevalence of RLS in patients affected with anemia was significantly more ($p = 0.043$). Increasing age (OR = 1.06) and the duration of IBD (OR = 1.08) were associated with increased risk of RLS.

Conclusion:

Our findings indicate RLS frequently happens in patients with IBD. As RLS can affect sleep quality, it should be considered as one of the causes of sleep disturbance in patients with IBD.

Keywords: Inflammatory bowel disease, Restless leg syndrome

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INTRODUCTION

Inflammatory bowel disease (IBD) is a group of diseases in which the intestines become inflamed. Two major types of IBD are ulcerative colitis (UC) and Crohn's disease (CD). They are relapsing and remitting, and about 2.5-3 million of Europeans suffered from them (1). The exact etiology of IBD is unclear. It can be due to a combination of hereditary, genetic, and environmental factors (2). These patients often have anemia, malnutrition, and micronutrient deficiencies (3).

Sleep disorders are common in patients with IBD

and can lead to the exacerbation of existing IBD (4,5). Restless leg syndrome (RLS) is a kind of sleep disorder and characterized by an urge to move the limbs with abnormal sensations in the legs (6). The prevalence of RLS ranges from 1% to 15% in the general population (7). Secondary RLS is seen due to other medical conditions such as diabetes, collagen disease, liver cirrhosis, renal failure, Parkinson's disease, and iron-deficiency anemia (8-10).

Because RLS in patients with IBD is misdiagnosed or undiagnosed and it is associated with sleep disturbance, irritability, affective symptoms, and cognitive dysfunction, early identification of RLS can improve the quality of life of these patients.

MATERIALS AND METHODS

The present study was a cross-sectional study carried out in Guilan province, Iran. 432 patients with a background of IBD were selected by convenience sampling from the gastroenterology department of a university hospital. Ethical approval was received from the Ethics Committee of Guilan University of Medical Sciences. The collection of samples began in April 2018 and was completed at the end of November 2018. All patients over 18 years old with a primary diagnosis of IBD by a gastroenterologist were enrolled. Then they were visited by one of the researchers explaining the scope of the study and ensuring the confidentiality of information. All participants gave oral and written informed consent prior to inclusion in the study. One of the researchers made a checklist to record the sociodemographic characteristics. Previous severe medical, neurological, and psychiatric history, use of medication that might directly cause restless legs symptoms (RLS), and iron deficiency anemia was identified based on periodic examination by the gastroenterologist, and lab tests were recorded in their files. The diagnosis of RLS was confirmed by structured clinical interview based on DSM-V (11), and its severity was identified using a self-report questionnaire with International Restless Legs Scale (IRLS) whose reliability and validity have been studied in Iran (12). The inclusion criteria were all over 18-year-old patients who received a primary diagnosis of IBD at least one year before the study which had been confirmed by a gastroenterologist based on endoscopic procedures and lab tests. The

exclusion criteria were all patients with the inability to read or write; the presence of a neurological, physical, and psychiatric disorder, or history of continuous use of psychiatric and non-psychiatric medications before the onset of RLS that might directly cause RLS, and presence of acute alcohol or other substance use disorder. 432 cases were examined, and by considering exclusion criteria, 384 participants were included in this study. Then patients with IBD who screened positive for RLS were compared with patients who screened negative for the RLS.

STATISTICAL ANALYSIS

Statistical analysis was performed using the SPSS software version 20. Descriptive results were reported by mean \pm standard deviation/frequency (percent). For comparing the demographic and clinical characteristics between the groups of patients with and without RLS, the Chi-square test was used. The odds ratios (OR) with 95% confidence intervals (CI), were calculated with logistic regression to assess the associations between the continuous variables and RLS dummy variable. $p < 0.05$ was considered statistically significant.

RESULTS

The sociodemographic of the study participants are summarized in table 1. The total number of participants was 384 patients with a mean age of 42.7 years (ranging from 18 to 69, Sd = 11.75). The most common type of IBD was UC (n = 324, 84.3%) and 15 (3.9%) patients suffered from anemia.

The prevalence of RLS amongst all participants was 15.9%. It was significantly higher in women ($p = 0.042$), primary/secondary, and high school graduates ($p < 0.0001$), married ($p = 0.011$), and retired ($p = 0.021$) patients. The prevalence of RLS in patients affected by anemia was significantly more ($p = 0.043$). Increasing age and the duration of IBD were associated with the increased risk of RLS (OR = 1.06; CI = 1.03-1.09, OR = 1.08; CI = 1.01-1.17, respectively) (table 1).

DISCUSSION

This is the first study in Iran estimating the prevalence of RLS in patients with IBD. The results of this study showed that 15.5% of patients with IBD experienced RLS.

Table 1: Demographic and clinical characteristics of 384 patients with IBD

| Variables | Total | Without RLS | With RLS | | | Total | p value ^a |
|-------------------------|------------|------------------|---------------|-------------------|-----------------|-----------|----------------------------|
| | N (%) | N (%) | Mild N (%) | Moderate N (%) | Severe N (%) | | |
| Total | 384 (100) | 323 (84.1) | 23 (6.0) | 28 (7.3) | 10 (2.6) | 61 (15.9) | - |
| Sex | | | | | | | |
| Male | 179 (46.6) | 158 (88.3) | 6 (3.4) | 14 (7.8) | 1 (0.5) | 21 (11.7) | 0.042 |
| Female | 205 (53.4) | 165 (80.5) | 17 (8.3) | 14 (6.8) | 9 (4.4) | 40 (19.5) | |
| Education | | | | | | | |
| Illiterate | 26 (6.8) | 22 (84.6) | 3 (11.5) | 1 (3.8) | 0 (0.0) | 4 (15.3) | <0.0001 |
| Middle school graduated | 49 (12.8) | 34 (69.4) | 5 (10.2) | 6 (12.2) | 4 (8.2) | 15 (30.6) | |
| Diploma | 128 (33.3) | 101 (78.9) | 11 (8.6) | 12 (9.4) | 4 (3.1) | 27 (21.1) | |
| University graduated | 181 (47.1) | 166 (91.7) | 4 (2.2) | 9 (5.0) | 2 (1.1) | 15 (8.3) | |
| Background | | | | | | | |
| Rural | 45 (11.7) | 38 (84.4) | 4 (8.9) | 3 (6.7) | 0 (0.0) | 7 (15.6) | 0.936 |
| Urban | 339 (88.3) | 285 (84.1) | 19 (5.6) | 25 (7.4) | 10 (2.9) | 54 (15.9) | |
| Marital Status | | | | | | | |
| Single | 63 (16.4) | 60 (95.2) | 3 (4.8) | 0 (0.0) | 0 (0.0) | 3 (4.8) | 0.011 |
| Married | 313 (81.5) | 259 (82.7) | 18 (5.8) | 27 (8.6) | 9 (2.9) | 54 (17.3) | |
| Occupation | | | | | | | |
| Workless | 171 (44.5) | 139 (81.3) | 14 (8.2) | 11 (6.4) | 7 (4.1) | 32 (18.7) | 0.021 |
| Employed | 63 (16.4) | 56 (88.9) | 2 (3.2) | 5 (7.9) | 0 (0.0) | 7 (11.1) | |
| Retired | 38 (9.9) | 27 (71.1) | 2 (5.3) | 6 (15.8) | 3 (7.9) | 11 (28.1) | |
| Self employed | 112 (29.2) | 101 (90.2) | 5 (4.5) | 6 (5.3) | 0 (0.0) | 11 (9.8) | |
| IBD Type | | | | | | | |
| CD | 60 (15.6) | 50 (83.3) | 1 (1.7) | 7 (11.7) | 2 (3.3) | 10 (16.7) | 0.872 |
| UC | 324 (84.4) | 273 (84.3) | 22 (6.8) | 21 (6.5) | 8 (2.4) | 51 (15.7) | |
| Anemia | | | | | | | |
| Yes | 15 (3.9) | 10 (66.7) | 1 (6.7) | 2 (13.3) | 2 (13.3) | 5 (33.3) | 0.043 |
| No | 369 (96.1) | 313 (84.8) | 22 (6.0) | 26 (7.0) | 8 (2.2) | 56 (15.2) | |
| | | Mean ± SD | | OR | CI | | p value^a |
| Age | | 42.77 ± 11.75 | | 1.06 | 1.03 - 1.09 | | < 0.0001 |
| Duration of IBD | | 6.71 ± 3.44 | | 1.08 | 1.01 - 1.17 | | 0.036 |

IBD = Inflammatory bowel disease; CD = Crohn's disease; UC = Ulcerative colitis; Sd: Standard deviation; a Chi-square test

^alogistic regression

Our findings show that although the prevalence of RLS among patients suffering from IBD is higher than those shown by Ohayon and colleagues in the general population, which ranged from 3.9% to 14.3% (13), it is comparable with those of Takahara and co-workers and Hoek and others who found that the overall prevalence of RLS in patients with IBD and CD was 20% and 25.7% respectively (14, 15). In our study, the

prevalence of RLS among patients with IBD is even lower than in previous studies. This may be due to performing better medical care in our setting, which was a famous educational university hospital.

In line with previous studies (16, 17), in the present study, the prevalence of RLS is higher in older people. Our findings are in contrast to Ohayon and colleagues, who showed RLS increased with age in

European and North American countries but not in Asian countries (13). In our study, most of the patients with RLS were women, married, residents of urban places, and unemployed. We need, however, to be cautious in exaggerating the external validity of our study. Given the fact that our study was conducted on individuals referred to a well known university hospital, our sample may have some characters not fully representing the general population.

According to Wang, Earley, and their colleagues, RLS is improved with the administration of oral or intravenous iron (18, 19). Furthermore, there is a relation between low serum ferritin and symptoms of RLS (20, 21). Our results related to iron deficiency anemia were consistent with previous studies, and the prevalence of RLS in patients affected by anemia was significantly more.

There was an important limitation of our study. It was done on patients who were referred to a university hospital, which is commonly a reference center for gastrointestinal cases in Guilan. Caution should be made in generalizing the results, and further research in other settings with a more precise methodology is recommended.

CONCLUSION

As RLS frequently happens in patients with IBD and as it can affect sleep quality, it should be considered as one of the causes of sleep disturbance in patients with IBD.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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