



ARTIGO ORIGINAL

Restlesslegssyndrome in patients of hemodialysis units in Manaus

Síndrome das pernas inquietas em unidades de hemodiálise em Manaus

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Resumo

Síndrome das pernas inquietas (SPI) é um distúrbio sensoriomotor caracterizado por uma urgência ou necessidade de movimentar os membros e variável desconforto. Insuficiência renal crônica (IRC) é uma importante causa de SPI secundária. O objetivo desse estudo foi avaliar a frequência da SPI em pacientes com IRC em uma unidade de hemodiálise em Manaus. 57 pacientes foram analisados. Foi utilizado um protocolo clínico para registrar dados pessoais, dados médicos e os critérios definidos pelo Grupo Internacional de Estudos de SPI. A frequência de SPI foi de 14% (08 pacientes). Não houve diferença no testes hematológicos e bioquímicos. A prevalência é considerável e sugere uma importante presença de Síndrome das Pernas Inquietas na população de pacientes em hemodiálise. Estudos bioquímicos adicionais são necessários para elucidar a fisiopatologia da SPI em pacientes com falência renal.

Palavras-Chave: Síndrome das pernas inquietas, insuficiência renal crônica.



Abstract

Restless legs syndrome (RLS) is a sensorimotor disorder characterized by an urge or need to move the limbs and variable discomfort. Chronic renal failure (CRF) is an important cause of secondary RLS. The aim of this study was to assess the frequency of RLS in CRF patients in a hemodialysis unit in Manaus. 57 patients with CRF were assessed. A clinical protocol was used for personal dates, medical dates, and criteria provided by International Restless Legs Syndrome Study Group. Biochemical and hematological values were obtained. The frequency of RLS was 14% (08 patients). There was not difference in hematologic and biochemical tests. The frequency is considerable and suggests an important presence of the Restless Legs Syndrome in the population of patients in hemodialysis. Further biochemical studies are necessary to elucidate the pathophysiology of RLS in patients with renal failure.

Keywords: Restless Legs Syndrome, chronic renal failure.

Introduction

Restless legs syndrome (RLS) is a sensorimotor disorder characterized by an urge or need to move the limbs, usually associated with abnormal sensation in the legs¹. RLS was first described in the medical literature by the anatomist and physician Thomas Willis in 1685 and has been recognized as a well defined common and frequently distressing entity since Ekbon's classic description in 1945².

These symptoms are not necessarily painful but distressing. Commonly, the symptoms only occur during rest, usually when lying down or sitting. They worsen during the evening or at night, making it difficult to initiate or maintain sleep¹.

RLS is frequently described as one of the most common undiagnosed diseases, mainly because the patients do not seek medical attention or their symptoms are erroneously thought to be caused by anxiety or stress¹.



Revista de Ciências da Saúde da Amazônia Amazonia Health Science Journal

Epidemiological studies indicate that the symptoms of RLS are present in about 05-10% of the general population, but the prevalence of the condition in the general population shows wide variation¹. There are primary RLS e secondary RLS. The first refers to patients who do not have an associated disease (e.g. neuropathy, uremia) that might explain the symptoms. Secondary RLS is described as when it occurs in association with other disorders that progress more rapidly with advancing the age³. Chronic renal failure (CRF) is an important cause of secondary RLS. In patients with end-stage renal disease, the prevalence varies from 20 to 70%⁴. In RLS patients without CRF, an association between diabetes and RLS is reported⁵. Such a relationship was not found in CRF patients⁶. RLS has been noted in 15 to 40% of patients with uremia, it is most troublesome during hemodialysis, when patients must remain sedentary³. The pathophysiology of RLS in CRF is not established. Investigations have yielded conflicting biochemical data. Anemia and iron deficiency were thought to play role⁷.

The aim of this study was to assess the frequency of RLS in CRF patients, to assess metabolic and hematologic variables in CRF patients with and without RLS, the frequency and possible relationship between RLS and co-morbidities in CRF patients.

Material and Methods

This was a cross-sectional study in a hemodialysis unit in Santa Julia Hospital, in the city of Manaus, Amazonas State, Brazil. Manaus is the capital of the State of Amazonas. This study was approved by the Ethics Research Committee of the Institution.

57 patients agreed and participated of the study. The patients with RLS diagnosis were defined as case and the patients without RLS diagnosis were defined as control. There were not patients with less than 18 years or relevant cognitive decline (MMSE > 26). Patients without these criteria were not analyzed.

We used a protocol for personal data (age, gender, ethnic origin), medical data (year of diagnosis, time in hemodialysis, co-morbidities, type of hemodialysis, time of



symptoms), the essentials criteria provided by International Restless Legs Syndrome Study Group (table 1).

Laboratory values (hematocrit, hemoglobin, calcium, phosphorus, creatinine, blood urea) were obtained in the time of the interviews.

For the statistical analysis, with a normal distribution, was used the T-student test.

Table 1- Criteria diagnostic used to screen patients with RLS¹³

a) An urge to move the legs, usually accompanied or caused by uncomfortable and unpleasant sensation in the legs. (Sometimes, the urge to move is present without the uncomfortable sensations and sometimes the arms or other body parts are involved in addition to the legs.

b) The urge to move or unpleasant sensation begin(s) or worsen(s) during periods of rest or inactivity, such as lying or sitting.

c) The urge to move or unpleasant sensations are relieved partially or totally by movement, such as walking or stretching, at least as long as the activity continues.

d) The urge to move or unpleasant sensation are worse in the evening or night than during the day or only occur in the evening or night. (when the symptoms are very severe, the worsening at night may not be noticeable but must have been previously present.

Results and Discussion

Results



The group of 57 patients presented a mean age of 50 years (28 – 65 yo), and had been on dialysis service for a mean period of time of 09 months (3 – 25 months). There were 33 males (58%) and 24 females (42%), with 08 classified as caucasians (14%) and 49 as non caucasians (86%). The frequency of RLS was 14% (08 patients), with 04 males and 04 females with RLS, 06 non caucasians and 02 caucasians with RLS. We found no significant difference in RLS frequency comparing mean age ($p < 0,8$), male and female ($p < 0,547$), caucasian and non caucasian population ($p < 0,525$).

There was not significant difference in hematocrit ($p > 0,9$), hemoglobin ($p > 0,87$), calcium ($p > 0,64$), phosphorus ($p > 0,14$), creatinine ($p > 0,14$), blood urea ($p > 0,6$).

The co-morbidities found were association diabetes mellitus plus arterial hypertension in 31 patients (54%) and only Arterial Hypertension 26 patients (46%). In RLS group 04 patients present arterial hypertension and 04 patients diabetes plus arterial hypertension. No significant difference was found between the group with and without RLS for comorbidity.

Discussion

Chronic renal failure (CRF) is a condition with high prevalence of RLS. In patients with end-stage renal disease, the prevalence varies from 20% to 70%⁴. Previous studies yielded very different estimations of RLS prevalence in patients with chronic renal disease, ranging from 17% to 62%⁷. We found a prevalence of 14%, showing a large variability in the results, when compared to the literature. Differences in prevalence estimates of RLS might be caused by differences in ethnic origin, cultural status, socioeconomic status, or medical treatment conditions. However, causes of the difference have not been clarified yet⁸.

The prevalence of RLS increases with advancing age. A recent telephone survey conducted by the National Sleep Foundation reported a prevalence of 27% in individual aged >65 years³. We had a low mean age, with only one patient with 65 yo, what can explain in part the frequency of RLS patients found.



Revista de Ciências da Saúde da Amazônia Amazonia Health Science Journal

The female-to-male distribution of RLS is reported to be equal³, as we found. In the Germany, there is higher prevalence in elderly women than men: 13.9 versus 6.1%³. In the 2005 National Sleep Foundation study, 9.7% of patients reported RLS symptoms occurring twice weekly, with a higher prevalence occurring in women (11%) than in men (8%)⁹.

There were 06 non caucasian patients and 02 caucasian with RLS. The ethnic background of the brazilian population is very complex, making it sometimes difficult to classify an individual patient, and the spreading of the results to other populations cannot be ensured, given the unique heterogeneity of the population⁷.

The pathophysiology of the RLS is still unclear. In dialysis patients, it has been suggested that anemia and iron deficiency may play a major part in development of RLS. Roger et. al. had the suggestion about a relationship between low hemoglobin values and the occurrence of the symptoms, but he could not show any link to iron deficiency¹⁰. Collado-Seidel et. al. failed to find any correlation between the erythrocyte count and hemoglobin or hematocrit values and the presence of RLS in hemodialysis patients. Their findings suggest that the severity of anemia neither nor of iron deficiency constitutes a major pathophysiological factor in the development of RLS in uremic patient¹¹. Iron deficiency and inverse correlation with serum ferritin levels and transferring saturation have been found in many patients, but these findings were not confirmed by other authors. However, it is known that iron deficiency can play role in the pathophysiology of the syndrome in patients without renal disease⁷.

Some authors referred to secondary RLS with drug and genetic factors. We have no data to confirm or analyze these aspects¹².

Hyperparathyroidism is less frequent in RLS patients. Serum calcium and phosphate concentrations, however, did not differ between patients with and without RLS¹⁰. There is the hypothesize that uremia, with wide consequences in cellular physiology, can interfere with iron uptake across blood-brain barrier and originate iron deficiency in cerebral tissue, similar to found in some patients with idiopathic RLS. This



model can explain the development of RLS symptoms in patients with renal failure without detectable peculiarities in the biochemical parameters usually investigated⁷.

All the patients had CRF secondary to Arterial Hypertension (04 patients) and diabetes (04 patients). How the correlation between diabetes and RLS was not found, we can suggest that diabetes consequences do not play an important role in patients with RLS and renal failure, like peripheral neuropathy. There is a good evidence of association between RLS and peripheral neuropathy, however with different pathogenic mechanisms from what occurs in patients with renal failure associated to RLS and diabetes¹⁰.

Conclusion

The prevalence of RLS was 14% in this sample of patients on hemodialysis. The value found for us is considerable and suggest an important presence of the Restless Legs Syndrome in the population of patients in hemodialysis in Manaus. Further biochemical studies are necessary to elucidate the pathophysiology of RLS in patients with renal failure.

Os autores não possuem conflito de interesse.

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Revista de Ciências da Saúde da Amazônia

Amazonia Health Science Journal

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