



Mini Review

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Prevalence and Clinical Characteristics of Sleep Disorders in Patients on Chronic Hemodialysis

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Abstract

Introduction: Chronic hemodialysis is a current treatment in patients with advanced renal failure, the presence of sleep disorders is characteristic due to the comorbidities they present and the water overload altering their quality of life. Sleep disorders in patients with hemodialysis are a risk factor for morbidity and mortality and they should receive timely treatment that will determine the evolution of the disease.

Objective: Descriptive, cross-sectional study to determine the prevalence and describe the clinical characteristics of sleep disorders in adult patients who are in a chronic hemodialysis treatment center.

Results: A total of 27 patients were included. 55% men and 45% women, the average age was 60 years. 81% of the patients had more than 3 sessions and between 6 months and 1 year of stay in treatment. 77.7% of the patients were highly likely to present a sleep disorder associated with obstructive sleep apnea syndrome by standardized scales predicting sleep disorders.

Conclusion: There is a large percentage of patients with a probability of presenting sleep apnea in the population that is on chronic hemodialysis. It is necessary to perform standardized scales of probability of sleep disorders in patients and confirm the diagnosis in a timely manner and start treatment as soon as possible. Improving their quality of life and reducing their morbidity and mortality.

Keywords: Sleep, Hemodialysis, Prevalence, Apnea

Introduction

Chronic kidney disease (CKD) is a clinical condition caused by various diseases that damage the kidney and hinder its vital functions. The patient dies if he or she is not offered treatments that replace kidney function. CKD is a highly prevalent entity worldwide, affecting 3%-5% of the general population and affecting all races and age groups. It has been established that 0.1% of these patients, due to multiple factors, progress to a terminal condition called chronic kidney failure (CKD). For this condition there are treatment alternatives, known as renal replacement therapies (RRT), which include hemodialysis (HD), peritoneal dialysis (PD) programs, and kidney transplantation [1]. The economic and human costs of dialysis are significant. The human costs that CKD imposes on those who suffer from it are explained by the morbidity that the disease

imposes and the decrease in quality of life. Among the many medical problems faced by CKD patients are sleep disorders, with prevalence between 60% and 80% [2,3]. Sleep apnea and restless legs syndrome are much more common in dialysis patients than in the general population [4,5]. The most frequent sleep problems in CKD patients on dialysis are insomnia, restless legs syndrome, sleep apnea and excessive daytime sleepiness. The high prevalence of sleep disorders in these patients deserves special attention, because they not only alter the quality of life, but also negatively affect the health of those who suffer from them. The first polysomnographic studies of dialysis patients carried out in the late 1960s and early 1970s showed that these patients had a decrease in total sleep time, irregular cycles and long awakenings [6]. Sleep disorders are one of the



most frequent alterations in daily clinical practice and can affect up to 30% of the general population. They are sometimes the cause or consequence of an underlying medical or psychiatric process, significantly alter daily activities and have a decisive influence on people's quality of life [7,8]. Multiple factors, more or less specific to patients with renal failure, have been related to the appearance of sleep abnormalities, among which the following stand out: molecular media, urea or creatinine levels, pain, depression, itching, anemia, dialysis doses or vitamin deficiencies [9]. Sleep disorders in hemodialysis patients are a risk factor for morbidity and mortality and they should receive timely treatment to determine the evolution of the disease [10]. In the general population, sleep apnea-hypopnea syndrome (SAHS) is associated with an increase in cardiovascular morbidity and mortality, which in turn is the most frequent cause of death among hemodialysis patients, indicating that SAHS may contribute to maintaining a high mortality rate in this population. In this regard, the importance of nocturnal hypoxemia episodes associated with SAHS and the severity of coronary artery disease in patients with chronic kidney failure (CKD) on hemodialysis have recently been described. Several studies have been conducted with the aim of determining a possible association between CKD and SAHS. Although the mechanism has not been well established, it is postulated that uremic toxins may be involved in the appearance of SAHS [11,12-21]. Several published cases of improvement in sleep-disordered breathing once kidney function has been successfully restored after transplantation support this hypothesis. These aspects have increased interest in sleep disorders in patients with CKD. Regarding the prevalence of SAHS in patients with CKD, the studies show great disparity, with figures ranging from 14.5 to 80%, which is justified by the different methods used, since many were carried out on a selected population, with a small sample and with diagnostic techniques other than polysomnography, which is the test for sleep disorders. Even less research has been done in a population with different clinical characteristics such as patients on the waiting list for a kidney transplant, in whom the quality of sleep and the possible respiratory disorders that may appear during sleep have not been adequately studied.

Development

A visit was made to a Chronic Hemodialysis Unit in the town of San Martín Texmelucan, Puebla. Symptom questionnaires and standardized scales were applied to the patients who attended their respective sessions in the 3 shifts of the unit. The data of each patient were obtained and formalized in a database. To determine the prevalence of sleep symptoms in patients on chronic hemodialysis, to describe the clinical characteristics of sleep disorders in patients on chronic hemodialysis, as well as to develop the different scales for measuring sleep symptoms in the population and finally to determine, through standardized questionnaires, the probability of presenting some type of sleep disorder in this type of population.

Results

There are 27 patients with a diagnosis of CKD on HD (45% women and 55% men), the average age was 51 years, 62% of them married, and with an average BMI of 25.3. It should be mentioned

that these patients have hypercatabolism and tend to be malnourished as part of the disease, which in our opinion the BMI is very stable in this population. 77% of the patients weigh less than 50kg and 52% measure 160 cm, which makes us relate the chronicity of the disease. The time on hemodialysis was 1 year for 81% of patients, this center has patients with recent treatment and the sessions stipulated by the nephrologist were 82% twice a week. The most common etiology, like the rest of the world population, was secondary to Diabetes and systemic arterial hypertension in 59%. Regarding the symptoms, the following relevant information was obtained: the average of the patients with the application of the EPWORTH scale was 12.5, which makes us describe that the patients have a high probability of having a sleep apnea syndrome without being relevant the BMI, or the time in hemodialysis. Within the BERLIN scale, 77.7% of the patients resulted with HIGH PROBABILITY of presenting a sleep disorder called Sleep Apnea. It is worth mentioning that during the study we took on the task of carrying out, together with the sleep questionnaires, a new way of investigating a possible sleep disorder with the Lausanne NoSAS score index that allows the doctor to carry out this scale in the hemodialysis room and predict a possible sleep disorder. Regarding the PSQI index, it was greater than 8 on average, which places them as patients who require attention in their sleep. We must take into account that patients in HD have alterations in their sleep-wake cycle due to metabolic disorders *per se* (Table 1).

Table 1: 27 patients with a diagnosis of CKD on HD were included with the following characteristics.

CHARACTERISTICS	NUMBER OF PATIENTS N=27
Average age	51±15

Discussion

There are multiple limitations in our study, firstly, because it was a very small group and there was no control group, and the diagnosis was not confirmed by a respiratory polygraphy or polysomnography study, but it has an important clinical relevance in this type of population that has a high morbidity and mortality after starting therapy and the presence of sleep apnea can and should be a very important risk factor, hence its relevance in the clinical field.

Conclusion

27 patients were included with an average age of 60 years, 55% men and 45% women. Average BMI of 25 points. 81% of the population attended 3 times a week for treatment and had been on treatment for 6 months to 1 year. The most prevalent etiology was Diabetes Mellitus and Systemic Arterial Hypertension. Within the probability scales, the following were obtained: an average of 12.5 points on the Epworth scale, 8.7 on the PSQI scale, and on the Berlin scale with a 77% probability of presenting sleep apnea. There is a large percentage of patients with a probability of presenting sleep apnea in the population that is on chronic hemodialysis. It is necessary to perform standardized scales of probability of sleep disorders in patients and confirm the diagnosis in a timely manner and start treatment as soon as possible, improving their quality of life and reducing their morbidity and mortality.

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