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Research Article

# Frequency of Insomnia and Daytime Sleepiness in Patients with Chronic Renal Disease of Tijuana

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**Abstract**

**Background:** The frequency of sleep disorders in patients with chronic kidney disease is 20-70%, it is more prevalent in this group of patients compared to the general population. In users of hemodialysis (renal replacement therapy), the presence of insomnia and daytime sleepiness has been demonstrated as the most frequent sleep disorders.

**Objective:** To determine the frequency of insomnia and daytime sleepiness in patients with chronic kidney disease (hemodialysis) in Tijuana.

**Design and Setting:** Descriptive cross-sectional study.

**Methods:** A census was carried out that included 75 patients with renal replacement therapy (hemodialysis) within the Tijuana Regional General Hospital #1 during May 2019. The Athens scale was applied to determine the presence of insomnia and Epworth scale for daytime sleepiness. In the statistical analysis descriptive statistics were used with a 95% confidence interval.

**Results:** 55% of patients had insomnia and 25% daytime sleepiness.

**Conclusion:** Insomnia was the most prevalent sleep disorder in our study, these results show the need to assess the quality of sleep and the actions to improve it as the main treatment for both conditions.

**Keywords:** Insomnia; Daytime Sleepiness; Chronic Kidney Disease

## Introduction

Sleep disorders are a series of alterations related to the sleep process. There are sleep disorders at the beginning, maintenance and during the sleep-wake cycle. The sleep of the human being, according to polysomnographic criteria, is divided into REM (Rapid Eye Movement) and Non-REM (Non Rapid Eye Movement) sleep; both types of sleep are repeated in four or five cycles per night at intervals of 90-120 minutes [1]. Within these diseases is insomnia, which is defined as the difficulty in starting or maintaining sleep or feeling of not having had a satisfactory sleep. Daytime sleepiness characterized by the presence of excessive sleep during the day or difficulty staying alert and awake. The frequency of sleep disorders in patients with chronic kidney disease is 20-70% [2], it is more prevalent in this type of patients compared to the general population where insomnia is reported in 35% and daytime sleepiness 16% [3]. Currently, there is no information in Mexico that gives us an overview on this topic.

The consequences of lack of sleep affect the quality of life of patients, who have inability to concentrate, memory problems, deficits in neuropsychological tests and can generate fatal accidents due to drowsiness [4]. Sleep disorders do not always produce important manifestations in health, sometimes can be subtle symptoms such as emotional lability, irritability, low tolerance to frustration, behavior disorders and aggression, sleep disorders affect daytime functioning [5]. According to International Classification of Sleep Disorders (ICSD-3), more than 90 sleep disorders have been described, some of them have a high prevalence in the general population such as insufficient sleep syndrome (40%), insomnia (20%), respiratory disorders during sleep (2 -5%), restless leg syndrome (2%), periodic leg movements (MPP) during sleep, phase lag and parasomnias. Sleep disorders have been linked to an increase in mortality, cardiovascular diseases, accidents at work, traffic accidents, psychiatric disorders and deficiencies in the cognitive and performance area [6]. The objective of our research was to determine the frequency of insomnia and daytime sleepiness in patients with chronic kidney disease on hemodialysis of the General Regional Hospital # 1 of Tijuana.

## Methods

### Study design and population

A descriptive cross-sectional study was conducted in May 2019. The research was carried out in HGR #1 of the Instituto Mexicano del Seguro Social (IMSS); which has an area of hemodialysis. A census included 75 patients receiving renal replacement therapy (hemodialysis) and who agreed to participate in the study by signing the informed consent over 18 years.

### Variables

The collection of variables was done with a standardized data sheet; the variables collected were the following: age, which was collected directly from the patients and their medical card; gender was through phenotypic characteristics; marital status, where it was classified as with or without a partner; the occupation was classified as unemployed or laborly active; the diagnosis of insomnia was made when applying the Athens scale, it is considered positive if a score greater than or equal to 6 points and for diagnosis of daytime sleepiness in case of obtaining a score greater than or equal to 9 on




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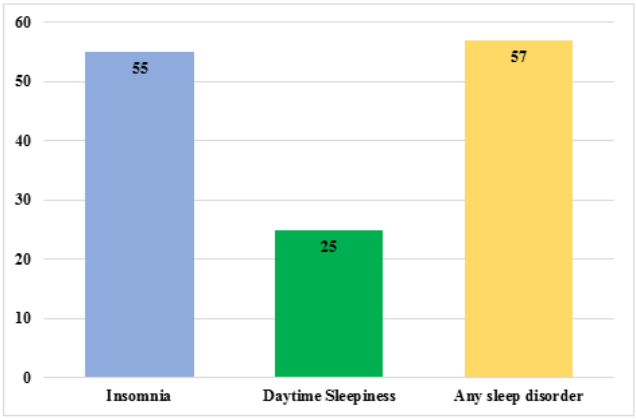


**Graphic 1:** Distribution of the sleep disorders.

the Epworth scale; both questionnaires validated in Spanish, adapted to the Mexican population and with a Cronbach's alpha of 0.89 [7,8].

### Statistical analysis

The data obtained was integrated into the data collection sheets and analyzed using the SPSS program version 21 in Spanish. We perform descriptive statistics; for qualitative variables frequencies and percentages; for quantitative variables, mean and standard deviation.

### Ethics

The study was approved by the local health research and ethics committee #204; with registration number R-2019-204-008. The research was conducted under the general health law on health research, bioethical principles and the Helsinki declaration.

## Results

The average age of the participants was 43.93 ± 16.53 years. 75 questionnaires were applied for insomnia and daytime sleepiness detection, identifying that 55% had insomnia and 25% daytime sleepiness (Graphic 1). More than half of the patients (57%) had some sleep disorder. Insomnia and daytime sleepiness were more prevalent in women. A high percentage (79%) of patients with daytime sleepiness were with a partner and 32% of patients with insomnia were with a partner. When assessing work activity, patients with insomnia and daytime sleepiness had a high percentage of unemployment (Table 1).

## Discussion and Conclusion

The most important finding of our study was a low prevalence of insomnia and daytime sleepiness in patients with hemodialysis. Insomnia was the most prevalent sleep disorder in our study but with a lower percentage than those reported by Ezza (2015) and Losso (2015) who found a prevalence of insomnia of 69% and 85% in patients with hemodialysis respectively [9-10]. Choi et al (2017), showed that women have longer sleep duration [11], contrary to what was found in our study where a higher prevalence of insomnia and daytime sleepiness in the female gender was identified; our results are similar to those reported by Muhammad (2016) [12].

Most of our participants were unemployed; the occupation plays an important role shown by Sasaki et al (2017), found that patients with chronic kidney disease with a rotating work had a higher frequency of insomnia [13]. The relationship between sleep disorders in this population was studied by Sabry et al (2010), where he found that the presence of daytime sleepiness was correlated with the presence of obstructive sleep apnea and snoring, but no literature on the association of insomnia and daytime sleepiness was found in this population [14].

**Table 1:** Baseline characteristics.

| | | Total | Insomnia | Daytime Sleepiness |
|---|---|---|---|---|
| **Variable** | **Subtype** | **N (%)** | **N (%)** | **N (%)** |
| | | **(n=75)** | **(n=41)** | **(n=19)** |
| **Sex** | Male | 33 (44) | 18 (44) | 9 (47) |
| | Female | 42 (56) | 23 (56) | 10 (53) |
| **Marital Status** | With partner | 22 (29) | 13 (32) | 15 (79) |
| | Without partner | 53 (71) | 28 (68) | 4 (21) |
| **Occupation** | Unemployed | 57 (76) | 28 (68) | 13 (68) |
| | Employed | 18 (24) | 13 (32) | 6 (32) |

N: Frequency; %: Percentage.

We found that the results obtained at the end of the study were quite similar to international literature. It is necessary to prevent sleep disorders by establishing healthy sleep patterns, these actions are the main treatment for these diseases. After our analysis of results, we recommend to systematically screen all patients under renal replacement therapy (hemodialysis), to try to detect patients at high risk of sleep disorders, in order to provide timely attention to these important problems of health. An easy strategy to carry out is to train first-contact personnel to routinely ask each patient "how do you sleep?" In this way, patients with difficulty and without difficulty sleeping can be classified to be studied through a more specific screening.

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