Mental status assessment in patients with chronic kidney disease undergoing hemodialysis treatment

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Abstract

Chronic Kidney Disease affects 10% of the world's population and is the eleventh cause of mortality in Mexico. Process of multiple conditions resulting from kidney (nephron) dysfunction, affecting the glomerular filtration rate. Depression and anxiety are affective mental disorders that appear at different stages of the disease, presenting psychosocial and emotional symptoms that affect treatment and quality of life.

A study was conducted on 63 patients with Chronic Kidney Failure who were undergoing hemodialysis treatment. The study aimed to identify any mental alterations in these kinds of patients. The study was observational, descriptive, cross-sectional, and analytical. The Hamilton Depression and Anxiety Scale was used to evaluate patients, and sociodemographic data were collected. The results were analyzed in terms of frequency and percentage.

Of a total of 63 patients, 54% were female and 46% male, with a predominance in the age group between 41 and 60 years (52.4%), 61.9% of patients are married, with no schooling 50.8 %, occupation 42.9% are unemployed, 28.6% are housewives, the duration of treatment with hemodialysis between 1 and 2 years (69.8%), patients with minor depression 23.8%, with moderate, severe and very severe depression the percentage was minimal,

patients without depression 63.5%. Patients with somatic anxiety 23.8%, psychological anxiety 17.5%, patients without anxiety 58.7%.

The evaluation of the mental state of the patients who are enrolled in the hemodialysis program was carried out. According to the results, it can be said that mental alterations are increasing. This entity represents a challenge when differentiating psychiatric symptoms from physical ones, It usually affects any group of patients.

Key words: chronic renal failure, hemodialysis, depression, anxiety

Resumen

Introducción: la depresión y la ansiedad son un trastorno mental afectivo que hace aparición en distintas etapas de la Enfermedad Renal Crónica (ERC), presentan síntomas psicosociales, emocionales, que afectan el tratamiento y calidad de vida de los pacientes con enfermedad renal crónica. La ERC afecta al 10% de la población mundial, es la décimo primera causa de mortalidad en el territorio mexicano. Proceso de múltiples afecciones resultado de la disfuncionalidad del riñón (nefrona), afectando a la tasa de filtrado glomerular.

Objetivo: identificar alteraciones mentales en pacientes con Falla Renal Crónica en tratamiento con hemodiálisis.

Metodología: se realizó la evaluación del estado mental de 63 pacientes inscritos en el programa de Hemodiálisis. Se aplicó la Escala de Depresión y Ansiedad de Hamilton, y se recolectaron datos sociodemográficos. Los resultados fueron analizados por frecuencia y porcentaje.

Resultados: de un total de 63 pacientes, el 54% fue de sexo femenino y el 46% de sexo masculino, con predomino en el grupo de edad entre 41 y 60 años (52.4%). El 61.9% de pacientes están casados, sin escolaridad 50.8%, en el rango de ocupación el 42.9% son desempleados, 28.6% amas de casa. El tiempo de tratamiento con hemodiálisis oscila entre 1 y 2 años (69.8%), pacientes con depresión menor 23.8%, con depresión moderada, severa y muy severa el porcentaje fue mínimo, pacientes sin depresión 63.5%. Pacientes con ansiedad somática 23.8%, ansiedad psíquica 17.5%, pacientes sin ansiedad 58.7%.

Conclusión: de acuerdo con los resultados, las alteraciones mentales van en aumento. La ERC es una entidad que representa un reto, al diferenciar los síntomas psiquiátricos de los físicos, suele afectar a cualquier grupo de pacientes.

Palabras clave: Falla renal crónica, Hemodiálisis, depresión, ansiedad

Introduction

Chronic Kidney Disease (CKD) is defined as the gradual and irreversible loss of renal function, caused by the destruction of the renal parenchyma. Worldwide, there is more than 10% of the population with this entity, 1 out of 10 patients suffer from it; generally as a complication of chronic diseases like arterial hypertension and diabetes mellitus, which can cause renal failure or lead to a more advanced stage. Mental illnesses have been observed in patients with some chronic disease, including CKD; in Latin America, more than 350 million patients present some degree of psychiatric alteration in any age group. The loss of nephron functionality, at least for 3 months, affects the glomerular filtration rate (GFR) forcing the patient to a permanent substitution treatment, including peritoneal dialysis (PD), hemodialysis (HD) or renal transplantation, which is indicated in a glomerular filtration rate (GFR) between 5-10 mL/min/1.73m3. It can culminate in death depending on its progression (1,2,3,4).

In Mexico, chronic renal failure presents 4000 new cases per year (8% - 10% of the Mexican population over 20 years of age). It represents a high health cost due to years of work inactivity, high levels of morbidity and mortality, treatment desertion, poor nutrition, economic difficulty in acquiring drugs or adjuvant therapies and low quality of life (5).

The diagnosis of CKD is made by clinical and laboratory studies with blood chemistry and blood biometry to determine the presence of anemia, mineral metabolism and acid-base balance. Diagnostic imaging (echo-Doppler, digital angiography) determines the anatomy of the renal system. GFR is the critical staging parameter for CKD (6).

Treatment includes substitutive therapy like hemodialysis (HD), which works by exchanging solutions and a solute through a membrane. It allows the passage of medium and small caliber solutes, preventing the passage of albumin. The therapy is administered through sessions lasting approximately 3 to 4 hours, with a repetition of 2 to 4 times per week. In addition to therapy, the patient needs diet control, care of central vascular access, treatment of the underlying pathology, followed by pharmacotherapy (7).

There are patients highly affected by the change in their daily habits that imply the abandonment of their social, work, personal and sexual activities due to CKD, and these changes can be related to alteration of the mental state, which is manifested with affective symptoms of depression, anxiety, somatization, hostility, among others, generating a challenge between the

differentiation of a picture by mental alteration, to a picture by complication of the underlying disease. Depression, according to the WHO, is a treatable affective mental disorder, with cognitive and somatic symptoms, with mood alteration, and is mainly classified as major depressive disorder, dysthymic, and bipolar. People with depressive disorders present 2 times more absenteeism due to inability to carry out daily activities. Anxiety tends to generate isolation; the patient experiences excessive impatience and overthinking of the perception of the disease that accompanies it. Genetic, biological, psychiatric and environmental factors play an important role. Some anatomical factors try to explain it, due to the size of the hippocampus, parahippocampus, amygdala and prefrontal cortex, this postulates the alteration of the metabolism of neurotransmitters as responsible for the alteration of mental states (8,9,10,11).

There is some difficulty in differentiating somatic symptoms from physical symptoms produced by uremia, which can occur when GFR is below 30 ml/min, the patient presents symptoms of uremic syndrome including anorexia and nausea, asthenia, attention deficit, hydrosaline retention, edema, paresthesia and insomnia.

This symptomatology is joined to the clinical picture by decreased physical and cognitive activity and physical symptoms (nausea, fatigue, vertigo, insomnia). This condition leads to non-adherence, or low adherence rate due to non-compliance with the diet, pharmacological, which can even lead to suicide (7,8,12).

Quality of life is a process of self-evaluation of an individual with respect to his health, the patient evaluates his position within society and his degree of functionality in it. The level of quality of life affects or benefits the patient by the level of self-efficacy, social support and active coping strategies, which influences the level of adherence to treatment, and the patient's general condition (13).

The HD patient undergoes a process of adaptation in which emotions are determinant for the development of complications. Periods of anxiety are frequent due to the uncertainty it generates, increasing the perception of danger, hindering the normal process of cognition, language, sleep, appetite and sexual activity. Depression is the global worsening either by sadness, anguish, melancholy, unhappiness and dissatisfaction, pessimistic thoughts, subjective thoughts of discomfort, hopelessness, invalidity. It is of great importance to understand the individual abilities of adaptation to the

current medical condition (14).

Emotional symptomatology in patients with CKD has an impact on their treatment adherence, influencing the course and outcome of the disease. Specifically, depressive symptomatology is associated with total treatment abandonment, while anxious disturbance is related to treatment non-compliance. The aim of emotional regulation is to ensure adherence to treatment, this is associated with better social performance; mental health is an important factor recognized by clinicians and researchers, as it affects therapeutic adherence in all chronic diseases. For the evaluation of some alterations of the mental state as depression and anxiety, the Hamilton rating scale has been used, designed to be used in patients previously diagnosed with depression and anxiety (12, 15, 16).

For the treatment of hemodialysis patients with mental state alterations like depression and anxiety, the implementation of therapeutic activities such as emotional regulation mechanisms, hemodialysis groups with music therapy and psychotherapy, laughter yoga, cognitive-behavioral therapy support network plan, as well as training for the sensitization of health personnel in chronic diseases is recommended. Patients who show greater resilience achieve biological and mental adaptation, which can lead to better adherence to treatment (15,17,18,19).

Methodology

A study was carried out at the Hospital San Martín de Porres, in Apizaco, Tlaxcala, in its Hemodialysis unit during June and July 2023; its objective was to identify mental alterations, as depression and anxiety, in patients with Chronic Kidney Disease who were undergoing hemodialysis treatment. It was an observational, descriptive, cross-sectional and analytical study. It was carried out through the application of the Hamilton Depression and Anxiety Scale, and a collection of sociodemographic data, including age, gender, marital status, schooling, occupation and time of hemodialysis treatment. The participants were 63 patients aged 20 to 70 years old. The depression scale classifies patients into five categories: not depressed, minor depression, moderate depression, severe depression and extremely severe depression. The scale for measuring anxiety comprises three categories: mild, moderate and severe. The statistical test used was by frequencies and percentages and for the numerical variables, measures of central tendency were used.

The study was carried out in accordance with the ethical and institutio-

nal norms, the principles established in the Declaration of Helsinki and Tokyo, the Regulations of the General Health Law on Health Research, as well as the provisions of the Bioethics Committee and the Research Committee of the Centro de Estudios Superiores de Tepeaca.

Results

The results obtained were as follows: of a total of 63 patients, 54% were female and 46% male, with a predominance in the age group between 41 and 60 years (52.4%), 61.9% of patients with married marital status, there was a predominance of patients with no schooling, with 50.8%, followed by elementary education with 28. In occupation it was found that 42.9% were unemployed, followed by 28.6% of housewives, the time of treatment with hemodialysis between 1 and 2 years was 69.8%, patients with minor depression 23.8%, with moderate, severe and very severe depression the percentage was minimal, patients without depression 63.5%. Patients with somatic anxiety 23.8%, psychic anxiety 17.5%, patients without anxiety 58.7%.

Table 1. Socio-demographic data and alterations.

TOTAL: 63 PATIENTS		Frequency	Percentage
Age	61-70 years old	23	36.5
	41-60 years old	33	52.4
	20-40 years old	7	11.1
Gender	Female	34	54
	Male	29	46
Marital Status	Widowed	8	12.7
	Unfinished degree	2	3.2
	Married	39	61.9
	Single	14	22.2
	Professional	2	3.2
	Unfinished degree	3	4.8
Schooling	High School	8	12.7
	Elementary	18	28.6
	No schooling	32	50.8
Occupation	Unemployed	27	42.9
	Professional	2	3.2
	Employee	13	20.6
	Student	3	4.8
	Housewife	18	28.6
Time of treatment	> 2 years	5	8
	> 1 year	44	69.8
		14	22.2

Alterations in mental status

		Frequency	Percentage
Depression	Extremely Severe Depression	4	6.3
	Severe Depression	3	4.8
	Moderate Depression	1	1.6
	Mild/Minor Depression	15	23.8
	Not Depressed	40	63.5
Anxiety	Somatic Anxiety	15	23.8
	Psychic Anxiety	11	17.5
		37	58.7

Figure 1. Depressed states

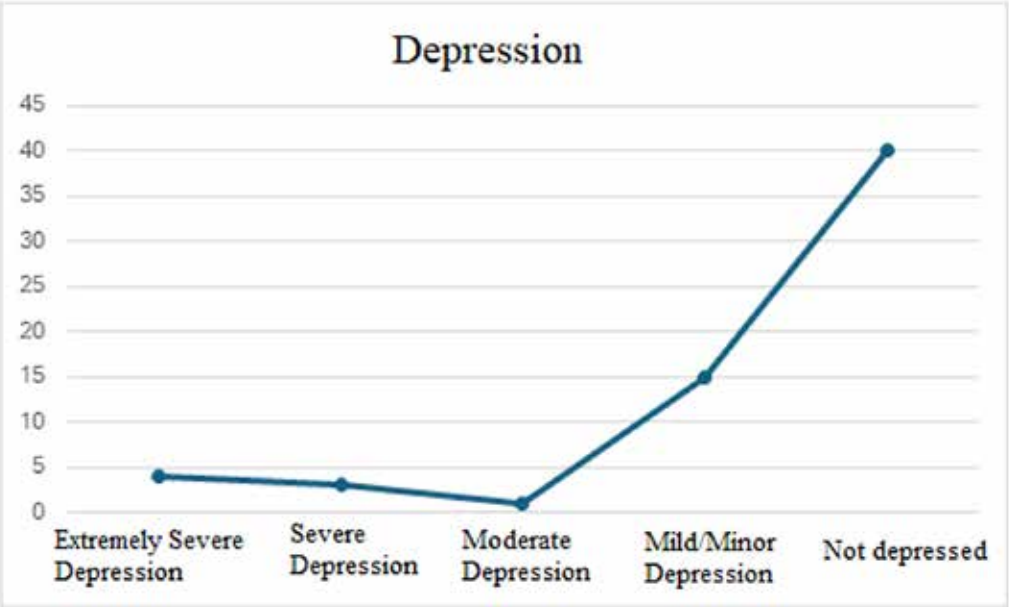
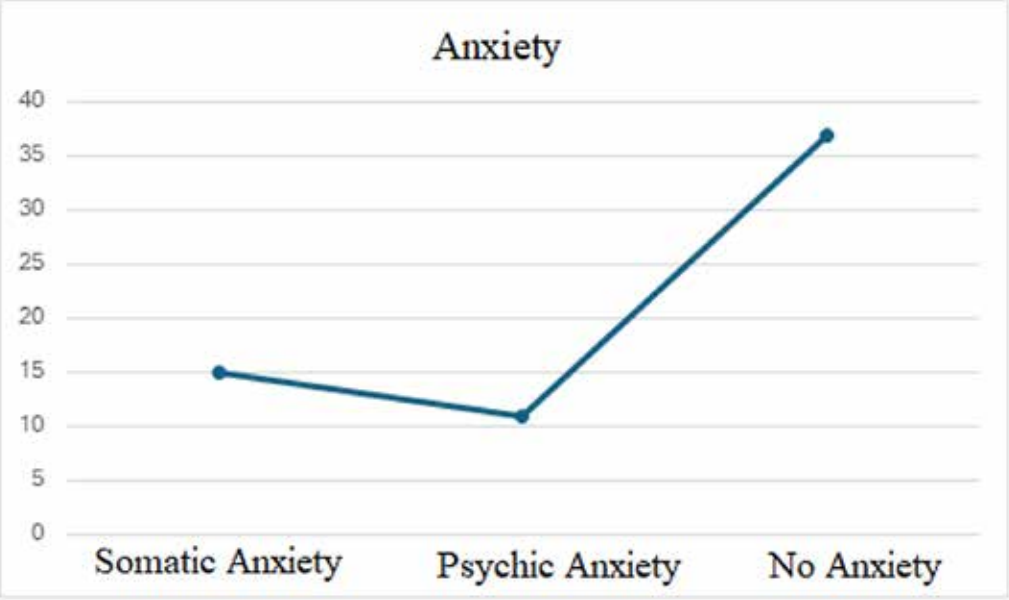


Figure 2. Anxiety states



Discussion

It is important to consider the sociodemographic factors that may influence the mental health of patients with CKD. For example, lack of schooling and unemployment, as mentioned by De La Cruz Mitac et al. (20), in their study carried out in Peru, found that 81.9% of patients are unemployed, while in our study 42.9% are also unemployed and 28.6% are housewives. Regarding schooling, Diaz Soto et al. (21) found that 50.8% of patients

had no schooling, which coincides with our study where it was found that 50.8% also had no schooling. Regarding depression and anxiety, Buenaño Barrionuevo (22) in his study conducted in Ecuador found that 23.8% presented mild depression and 6-3% very severe depression, in our study also found a very small percentage of patients with very severe depression, these findings highlight the importance of addressing the individual needs of each patient and provide a comprehensive approach to care.

Conclusion

The relationship between chronic kidney disease (CKD) and mental health (depression and anxiety) is essential to comprehensively address the well-being of patients under treatment. According to the results of different studies, it is observed that depression and anxiety are on the increase, so there is a need for adequate evaluation and care of mental health in these patients, since timely diagnosis and treatment of mental complications can improve adherence to treatment and clinical outcomes.

It is suggested that the implementation of therapeutic activities, including music therapy, psychotherapy, and laughter yoga, may be beneficial in improving the emotional well-being of patients. In addition, training of health care personnel in the management of chronic diseases and mental health problems is essential to provide comprehensive and quality care.

Conflicts of interest: None

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