EPIDEMIOLOGICAL PROFILE OF PATIENTS WITH NEPHROPATHY AND THE DIFFICULTIES IN ACCESS TO TREATMENT

Perfil epidemiológico de pacientes nefropatas e as dificuldades no acesso ao tratamento

Perfil epidemiológico de los pacientes con enfermedad de riñones y las dificultades de aceso al tratamiento

ABSTRACT

Objective: To describe the epidemiological profile of patients undergoing treatment for renal replacement therapy in dialysis modality, and to identify the difficulties in its realization. ***Methods:*** This is a cross-sectional study conducted in Itapipoca-CE, comprising 35 patients with chronic renal failure (CRF). The general data was analyzed descriptively using absolute and percentage frequencies. ***Results:*** The epidemiological profile of patients shows a higher frequency of: males (19 - 54.3%) aged between 31 and 60 (24 - 68.6%), low education (29 - 82.8%), family incomes of 1 to 2 minimum wages (25 - 71.4%), living in houses of masonry (30 - 85.7%) with treated water provided in their homes (17 - 48.6%). The main signs and symptoms that led to seeking medical consultation were: general weakness (21 - 60.0%), nausea (19 - 54.3%), edema (18 - 51.4%) and lack of appetite (14 - 40.0%). The features most frequently mentioned by the patients as probable causes to CRF were: association of hypertension with diabetes mellitus (11 - 31.4%), hypertension (9 - 25.7%) and glomerulonephritis (5 - 14.3%). Most patients reported difficulty in obtaining medical appointment (25 - 71.4%) and scheduling/receiving exams (20 - 57.1%). ***Conclusion:*** The epidemiological profile of patients studied is marked by a low socioeconomic status. As aggravating factors to this situation, there was the difficulty in getting appointments, scheduling and performing diagnostic tests, which undermines the treatment.

Descriptors: Health Profile; Renal Insufficiency; Chronic; Renal Dialysis.

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RESUMO

Objetivo: *Descrever o perfil epidemiológico de pacientes submetidos ao tratamento de terapia renal substitutiva na modalidade hemodiálise, além de verificar as dificuldades na sua realização.* ***Métodos:*** *Trata-se de um estudo transversal, realizado em Itapipoca-CE, com 35 pacientes portadores de insuficiência renal crônica (IRC). Os dados gerais foram analisados de forma descritiva usando as frequências absolutas e percentuais.* ***Resultados:*** *O perfil epidemiológico aponta uma maior frequência de pacientes: do sexo masculino (19 - 54,3%), com idade entre 31 e 60 anos (24 - 68,6%), baixa escolaridade (29 - 82,8%), renda familiar de 1 a 2 salários mínimos (25 - 71,4%), morando em casa de alvenaria (30 - 85,7%) e dispondo de água tratada em seus domicílios (17 - 48,6%). Os principais sinais e sintomas que levaram à busca da consulta médica foram: fraqueza geral (21 - 60%), náuseas (19 - 54,3%), edema (18 - 51,4%) e falta de apetite (14 - 40%). Os fatores mais frequentemente apontados pelos pacientes como prováveis causas da IRC englobavam: associação de hipertensão arterial (HAS) com diabetes mellitus (11 - 31,4%); HAS (9 - 25,7%); e glomerulonefrites (5 - 14,3%). A maioria dos pacientes relatou dificuldade para obter consulta médica (25 - 71,4%) e marcar/receber exames (20 - 57,1%).* ***Conclusão:*** *O perfil epidemiológico dos pacientes estudados é marcado por um baixo nível socioeconômico. Como agravante dessa situação, verificou-se a dificuldade de obterem consultas médicas, marcarem e realizarem exames diagnósticos, criando prejuízos para a realização do tratamento.*

Descritores: *Perfil de Saúde; Insuficiência Renal Crônica; Diálise Renal.*

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RESUMEN

Objetivo: *Describir el perfil epidemiológico de los pacientes sometidos a la terapia renal de sustitución en la modalidad hemodiálisis, además de verificar las dificultades para su realización.* **Métodos:** *Se trata de un estudio trasversal, realizado en Itapipoca-CE, con 35 pacientes portadores de insuficiencia renal crónica (IRC). Los datos generales fueron analizados de manera descriptiva utilizándose de las frecuencias absolutas y los porcentajes.* **Resultados:** *El perfil epidemiológico señala una mayor frecuencia de pacientes: del sexo masculino (19 - 54,3%), con edad de 31 a 60 años (24 - 68,6%), bajo nivel de escolaridad (29 - 82,8%), ingreso familiar de 1 a 2 sueldos mínimos (25 - 71,4%), viviendo en casa de albañilería (30 - 85,7%) y teniendo agua tratada en sus domicilios (17 - 48,6%). Los principales signos y síntomas para que los pacientes buscaran una consulta médica fueron: debilidad general (21 - 60%), mareos (19 - 54,3%), edema (18 - 51,4%) y la ausencia de apetito (14 - 40%). Los factores más frecuentemente apuntados por los pacientes como causas probables de la IRC incluyeron: la asociación de hipertensión arterial sistémica (HAS) con diabetes mellitus (11 - 31,4%); HAS (9 - 25,7%); y glomerulonefritis (5 - 14,3%). La mayoría de los pacientes relataron la dificultad en conseguir una consulta médica (25 - 71,4%) y hacer/recibir pruebas (20 - 57,1%).* **Conclusión:** *El perfil epidemiológico de los pacientes investigados está marcado por el bajo nivel socioeconómico. Para agravar la situación, se verificó la dificultad de obtención de citas médicas, marcación y realización de pruebas diagnósticas, generando perjuicio para la realización del tratamiento.*

Descriptores: *Perfil de Salud; Insuficiencia Renal Crónica; Diálisis Renal.*

INTRODUCTION

Along with the increase in Brazilian population's life expectancy, the occurrence of chronic degenerative diseases has also increased. According to *Ministério da Saúde - MS*[1] (Ministry of Health), based upon the proportional mortality in reported deaths from 1990 to 2007, it is possible to see an intense change in the mortality profile of Brazilian population. During this period, deaths related to non-communicable chronic diseases (NCCD) ranged from 34.3% to 30%, while infectious and parasitic diseases did not exceed 7%.

Among those diseases, chronic kidney disease (CKD) requires greater attention from health authorities, mainly because of its growing incidence in older age groups. The incidence rises with age, reaching values 10 times higher in the elderly (60 or above) than in people under 30 years old. Moreover, CKD is an insidious disease that shows signs and symptoms only in the final stages of its evolution. Therefore, its detection demands technical knowledge, access to tests and special attention from healthcare professionals[1,2].

The number of patients presenting CKD has been rising annually. In accordance with research conducted by

Sociedade Brasileira de Nefrologia (Brazilian Society of Nephrology), in 2008 there were 87,044 patients with CKD under hemodialysis treatment in Brazil. More than half of them (57.4%) were in the Southeast region and 19.1% in the Northeast region[3].

Difficulties in recognizing the early CKD signals have been resulting in late diagnosis and consequent treatment compromise. Improvement in CKD treatment involves early diagnosis and treatment; referral to specialized care; implementation of measures to control disease progression; identification and correction of the most common complications and co-morbidities; as well as education and preparation for renal replacement therapy in hemodialysis modality[4].

Patients get to the nephrology services mostly presenting uremia and profound anemia. These facts indicate that the disease was belatedly discovered, only when the kidney patient´s condition became clearly evident. Such uremic changes worsen the patient's general condition and requires more invasive assistance, increasing treatment costs[4].

As renal dysfunction progresses, symptoms become more incisive. There is a massive accumulation of urea, progressive anemia, metabolic acidosis and disorders in sodium, potassium, calcium and phosphorus concentrations[5]. Water accumulation gradually settles, which might cause severe edema, high blood pressure and congestive heart failure in predisposed patients. These symptoms become even more severe if a significant plasma sodium elevation results from high-salt diet[6].

Hypercalcemia, that is, calcium accumulation in patient's blood, may cause anorexia, nausea, vomiting, abdominal pain and constipation. In higher concentrations, reflecting increased kidney damage, hypercalcemia causes personality changes, apathy, drowsiness and mental confusion[5].

In this sense, the development of the kidney patient´s disease depends on agility do reach diagnosis, patient's clinical conditions related to co-morbidities and healthcare providers' conduct. Thus, patient's favorable prognosis depends on the effectiveness of the conducted treatment. Preventive tests for early detection of CKD in risk groups along with improved structure, technology and human resources in specialized services reflect lower morbidity and mortality due to the disease[7].

In light of the foregoing, the need to determine the patient's epidemiological profile is emphasized as an important strategy to learn his/her real situation and the offered treatment. Due to that, arises the question: what is the patients' social-demographic profile and what are their difficulties in access to renal replacement therapy in hemodialysis modality?

Hence, it is expected that this work shall contribute to growth and development of kidney patient care in the city of Itapipoca-CE and that the achieved results shall be evaluated for future interventions and more specific and appropriate actions towards health.

Thus, this study aimed at describing the epidemiological profile of patients living in Itapipoca-CE, who undergo renal replacement therapy in hemodialysis modality, as well as verifying kidney patient's main difficulties in receiving treatment.

METHODS

This is a cross-sectional study conducted from January to February 2010 in a specialized healthcare unit called *Centro de Referência em Atendimento Básico - CRAB* (Reference Center for Primary Healthcare) in downtown Itapipoca-CE.

In *CRAB*, attendance to the following medical specialties takes place: pediatrics, obstetrics, gynecology, trauma and psychiatry, besides general practice and nursing care. This care unit is supposed to receive patients referenced by primary healthcare units of the city and its districts, referring the most complex cases to the *Hospital Municipal de Itapipoca* (Itapipoca Municipal Hospital).

The study population included all 37 patients living in the city of Itapipoca, suffering from chronic kidney disease and undergoing renal replacement therapy in hemodialysis modality. The sample comprised 35 patients, since, during interviews, two patients refused to participate, despite all privacy guarantees and explanations on the importance of this study to the city.

The inclusion criteria adopted were CKD patients, who were users of the *Sistema Único de Saúde - SUS* (Unified Public Healthcare System); undergoing renal replacement therapy in hemodialysis modality; living in Itapipoca; and agreeing to participate. Exclusion criteria were: patients who were not living in Itapipoca, but referenced to the city; those who were not undergoing renal replacement therapy in hemodialysis modality and the seriously ill patients who were hospitalized.

Data was collected by the researchers through a structured interview. As instrument for data collection, a structured questionnaire was applied, assessing the following variables: age; sex; education; family income; type of residence; source of water used in the residence; CKD initial signs and symptoms; access to healthcare service; initial assistance place; difficulties in making appointments and tests; number of appointments during the year; testing and type of care unit where CKD had been diagnosed.

Results were consolidated and displayed in tables. A descriptive statistical analysis was used, based upon exploration of data concerning absolute and percentage frequencies, and the achieved results were interpreted in accordance with the relevant literature.

Ethical and legal aspects were respected, assuring participants of anonymity and freedom to choose whether or not to participate in the research. In compliance with *Conselho Nacional de Saúde - Resolução* 196/96 (National Health Council - Resolution 196/96), this project was subjected to the *Comitê de Ética em Pesquisa da Universidade Estadual do Ceará - UECE* (Research Ethics Committee of State University of Ceará) and received Approval 290281.

RESULTS

This study comprised 35 patients, from a total of 37 eligible, 19 (54.3%) being male. Over half of them (24 – 68.6%) were aged between 31 and 60. Most of them (27 – 77.1%) had only primary education; 25 (71.4%) had family income from 1 to 2 minimum wages; 30 (85.7%) lived in houses in masonry and 17 (48%) were provided with treated water in their homes (Table I).

The main initial signs and symptoms of CKD that made patients seek medical attendance were: generalized weakness (21 – 60%), nausea (19 – 54.3%) and edema (18 – 51.4%) (Table II). The main likely causes of CKD were: association between hypertension and diabetes (11 – 31.4%); hypertension (9 – 25.7%); diabetes (5 – 14.3%) and glomerulonephritis (5 – 14.3%) (Table III).

Table I - Distribution of patients according to socioeconomic and demographic data. Itapipoca-CE, 2010. (n = 35)

Variables	n	%
Gender		
Male	19	54.3
Female	16	45.7
Age (years)		
From 20 to 30	3	8.6
From 31 to 60	24	68.6
Over 60	8	22.8
Education		
Illiteracy	2	5.7
Primary Education	27	77.1
Secondary Education	5	14.3
Higher Education	1	2.9
Incoming (Minimum Wage)		
1 to 2 MW	25	71.4
3 to 4 MW	9	25.7
Over 5 MW	1	2.9
Kind of Residence		
Masonry	30	85.7
Mud	5	14.3
Water Source		
Treated water	17	48.6
Untreated water	12	34.3
Mineral water	6	17.1

Table II - Distribution of patients according to initial CKD signs and symptoms that led to medical assistance. Itapipoca-CE, 2010. (n=35)

Main signs and symptoms (each patient mentioned 1 or more signs and symptoms)	n	%
Generalized weakness	21	60.0
Nausea	19	54.3
Edema	18	51.4
Lack of appetite	14	40.0
Vomiting	11	31.4
Alteration in taste	10	28.6
Anemia	9	25.7
Backache	6	17.1
Uremic halitosis	2	5.7
Alterations in skin pigmentation	2	5.7
Painful urination	2	5.7

Table III - Distribution of patients according to the probable causes of CKD. Itapipoca-CE, 2010. (n=35)

Probable causes of CKD	n	%
DM* + SAH**	11	31.4
SAH	9	25.7
Glomerulonephritis	5	14.3
Unknown causes	6	17.1
Other pathologies	4	11.5
TOTAL	35	100

*DM: Diabetes mellitus   **SAH: Systemic Arterial Hypertension

Most of the patients (27 – 77.1%) were initially treated via *Estratégia Saúde da Família - ESF* (Family Health Strategy). On the other hand, it was also observed that 71.4% (25) and 57.1% (20) of them found difficulties in arranging appointments and in scheduling/receiving tests, respectively. Furthermore, 62.9% (22) reported not being tested for kidney disease diagnosis. Nevertheless, 42.8% (15) stated they had more than 4 appointments per year.

Regarding the care unit that detected CKD, only 5 (14.3%) patients were diagnosed at a *Unidade Básica de Saúde - UBS* (Primary Care Unit). Approximately half of them (19 – 54.3%) were diagnosed at *Hospital Municipal de Itapipoca* (Itapipoca Municipal Hospital). It is noteworthy the amount of patients whose diagnosis of CKD took place in clinics and secondary hospitals located in Fortaleza - CE: 9 (25.7%) (Table IV).

Table IV - Distribution of patients according to variables related to care service. Itapipoca-CE, 2010. (n=35)

Variables	n	%
Initial assistance in the FHS*		
Yes	27	77.1
No	8	22.8
Difficulties in making appointments		
Yes	25	71.4
No	10	28.6
Appointments per year		
From 1 to 2 appointments	10	28.6
From 3 to 4 appointments	10	28.6
Over 4 appointments	15	42.8
Difficulties in scheduling/receiving tests		
Yes	20	57.1
No	15	42.9
Diagnostic testing		
Yes	13	37.1
No	22	62.9
Care unit that had CKD diagnosed		
Local health center	5	14.3
Itapipoca Municipal Hospital	19	54.3
Private clinic in Itapipoca	2	5.7
Private clinic in Fortaleza	9	25.7

* Family Health Strategy

DISCUSSION

Chronic kidney disease is nowadays considered a worldwide public health issue. In Brazil, incidence and prevalence of renal dysfunction are increasing. The prognosis is still bad and treatment costs are extremely high. The estimated number of patients currently undergoing dialysis and with kidney transplantation in Brazil is close to 120,000, at a cost of 1.4 billion reais[7].

Given the above, the knowledge of patients' epidemiological profile becomes extremely important, in order to provide helpful information for treatment conduction.

In other study on epidemiological and clinical profiles of patients undergoing renal replacement therapy in Brazil, the age distribution was quite similar to the findings in this research, with predominance of adults aged between 45 and 64[8]. The incidence of kidney disease in that age group is due to a natural history of diseases like diabetes mellitus (DM) and systemic arterial hypertension (SAH), that lead to kidney dysfunction over the years[7].

Data from Ministry of Health support that fact by demonstrating the high prevalence – around 10% and 36%, respectively – in the group aged 40 and over, which may

reinforce the thesis that such people should be retested more constantly[9].

Regarding gender, other research also found a higher incidence of male patients among the ones undergoing dialysis[10]. A percentage of 55.8% male interviewees was found from a total of 260 patients undergoing hemodialysis in the northwest of the State of Rio Grande do Sul[10]. However, other researcher[4] found a different result: 66.7% of 122 studied patients were female.

Concerning interviewees' economic status, in this study most of them (27 – 77.1%) held only primary education and 25 (71.4%) had family income from 1 to 2 minimum wages. In this regard, it is referred the existence of a positive correlation, not only between low education levels, but also other signs of low socioeconomic status, as family income, and a higher risk of kidney disease and hemodialysis treatment, in comparison with the average of population in general[10].

For the living conditions, 85.7% (30) of the studied subjects lived in houses in masonry and only 48.5% (17) were provided treated water by *Companhia de Água e Esgoto do Ceará - CAGECE* (Water and Sewer Company of Ceará) in their homes. Most of the participants still used water from wells, waterholes or nascent of streams in the mountains in the area. The water from these sources is usually not treated with chlorine and fluorine, but merely filtered at home. That aspect brings out the benefits of treated water, which may preserve health and survival.

Water treatment is a duty of the states and water management/supplying services are an obligation of municipalities. The limited access of population to treated water and the deficiencies in water treatment may derive from ineffective social control. State and civil society must create an alliance and cooperation bond in order to engage the several social actors in the decision-making process[11]. Then, further study is necessary to make that understanding possible.

Regarding most common symptoms, patients in this research mainly reported those not exclusively related to kidney disease, such as: generalized weakness, nausea, edema, lack of appetite, vomiting, alteration in taste and anemia. That is caused by the fact that CKD usually provokes slow, progressive and irreversible loss of kidney functions. For these reasons, the organism develops adaptive processes which, to a certain extent, keep the patient symptom-free, until the loss of 50% of kidney function[5].

A 75% reduction of kidney function modifies internal homeostasis. So, the patient starts to present nocturia, mild anemia, high blood pressure, moderate edema in lower extremities and changes in urine (foamy or bloody urine)[5]. In that phase, there is an accumulation of plasma urea. Nevertheless, some patients might ignore the symptoms

and consider them as a result of some other unimportant pathology[7].

Anemia is related to the deficiency in renal production of erythropoietin. It can be noticed when the kidney function is 50% below normal, worsening as the kidney disease evolves[12].

With the progressive loss of renal mass, the production of erythropoietin is reduced, and the stimulus for erythropoiesis in bone marrow decreases. The decrease in the formation of new red blood cells causes hypoproliferative anemia with diverse consequences, ranging from pallor, generalized weakness and feeling of discomfort to physical disability and changes in heart, brain and cognitive functions. Moreover, severe anemia may influence the development of vascular diseases, such as right ventricular hypertrophy, by demanding increased strain on the heart[13].

Most patients in this study (60%) reported generalized weakness as a symptom that made them seek medical assistance. That symptom is typical of both anemia and plasma urea accumulation. Uremia symptoms, such as nausea, alteration in taste, metallic taste, anorexia and tendency to gastroenteritis, worsen the existing anemia[5]. Uremia is a nonspecific symptom that brings quite a few changes to one's life and usually appears later in kidney patients, since it results from reduced renal filtration capacity[5].

More than half of participants indicated edema as a reason to make an appointment. Edema appears early and is significant in patients following high-salt diet[6]. However, edema is a symptom frequently ignored by patients and, due to its imprecision, it is misinterpreted by physicians as a result of heart disease[5].

The occurrence of itching and halitosis were mentioned by some participants. Both are symptoms of uremia, indicating severe renal dysfunction. Two other interviewees specified dysuria as one of the reasons to seek attendance. This is a common symptom in bladder and urethral inflammatory processes and in patients with urinary tract infection or lithiasis, being a warning sign for renal impairment[14].

Epidemiological studies conducted in several regions of Brazil reinforce the role of systemic arterial hypertension (SAH), associated or not to diabetes mellitus (DM), as precursor of renal damage[2-4,15]. The high blood pressure causes damage to the whole vascular system, leading to atherosclerosis and alterations in the capillary walls[16]. Such alterations affect mainly arterioles and renal glomeruli, inducing arteriolar thickening, glomerular sclerosis, arteriolar fibrinoid necrosis and slow and progressive reduction in renal filtration[16].

High blood glucose levels produce damage to renal endothelial cell and increase glomerular barrier's

permeability. That damage stimulates albumin and protein loss to the glomerular filtrate, thinning of glomerular basement membrane and loss of several nephron structures function[17].

Besides DM and SAH, it is possible to observe in this study that glomerulonephritis was the forth leading cause of kidney diseases among participants. Glomerulonephritis causes gradual destruction of renal glomeruli due to successive glomerular inflammation and scarring processes. Moreover, it causes serious alterations to renal filtration in weeks, months or years. The velocity of kidney disease's progression will depend on the kind of damage suffered by the glomeruli, the patient's immune system reactions and the treatment quality[18].

DM and SAH are the leading primary diagnosis among CKD patients[4]. Patients with those pathologies are in the risk group, prone to develop kidney diseases, along with CKD patients' relatives. Preventive strategies against chronic diseases as SAH and DM ought to be early implemented in care services.

In this study, a significant amount of participants (27 – 77.1%) was assisted in the UBS by *Equipes de Saúde da Família - ESF* (Family Health Teams) when symptoms preceding renal dysfunction were felt. The data indicates that there is a demand for multidisciplinary professionals in the care units of the city.

According to the MS[19], the teams in UBS shall be dedicated to intervene in the risk factors to which the population is exposed, providing full, permanent and qualified assistance. Health promotion and education activities should be performed every day, focusing on the health risk to which each group of people is exposed.

Based on that premise, a group like the one presented by this study, with 79.9% of participants over 40 years old, should often be granted prevention and health education measures, since they are susceptible to cardiovascular and chronic renal diseases. Belated diagnosis of CKD could drastically diminish the kidney patient's survival chances, given that it causes severe anemia, accumulation of nitrogen-containing compounds in the blood and malnutrition.

CONCLUSION

The studied patients' profile is marked by low socioeconomic status. As aggravating factors to this situation, there was the difficulty in getting appointments, scheduling and performing diagnostic tests, which undermines the treatment.

It was concluded that the epidemiological profile of chronic kidney disease patients indicates an interconnection of factors that, altogether, feature the condition. Social factors experienced by participants are perceived as highly significant for the disease description, rather than the limited individual issues on a biological basis.

It was possible to see the need for inclusion of education and other available community resources in order to raise awareness on the issue of the kidney disease. It was understood that interventions in patient's health should vary, extending range of services and incorporating a networked attitude of care – health, education and community – starting with actions in the patient's social territory.

Therefore, given the complexity of chronic kidney disease, it was observed that care goes beyond medical aspects. It is necessary to prioritize the educative process, preferably with support of a multidisciplinary team.

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