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Knowledge on hemodialysis in chronic renal patients: A descriptive study

Lais Nobrega Mendes Santos[1], Nayana Pereira Porto[1], Thays Mayara Oliveira de Santana[1], Ana Beatriz de Almeida Medeiros[2], Ana Luisa Brandão de Carvalho Lira[2], Cecilia Maria Farias de Queiroz Frazão[3]

1 State Health Secretariat of Pernambuco
2 Federal University of Rio Grande do Norte
3 Federal University of Pernambuco

ABSTRACT:

Objective: To analyze the knowledge of the chronic renal patients undergoing hemodialysis regarding this treatment, according to the indicators of the "Knowledge:Treatment procedures" nursing outcome. **Method:** A descriptive study carried out in a public hospital of Pernambuco through the application of the "Knowledge: Treatment procedures" nursing outcome in 51 patients undergoing hemodialysis. **Results:** The surveyed patients had no knowledge, or limited and moderate knowledge, and did not have broad and/or substantial knowledge on hemodialysis. **Discussion:** Hemodialysis is a complex procedure and requires an adaptation of the patient's lifestyle. Therefore, knowing the disease and its treatment may contribute to a successful therapy. **Conclusion:** Through the application of the nursing outcome indicators in the clinical practice, it was verified that chronic renal patients have moderate, limited or no knowledge of hemodialysis.

Descriptors: Nursing Care; Chronic Renal Failure; Kidney Dialysis.

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INTRODUCTION

Chronic Kidney Disease (CKD) consists of a slow, progressive, and irreversible loss of the renal function where the body is unable to maintain its metabolic and hydroelectrolytic balance. It is based on the presence of a marker of kidney damage (such as changes in urine tests-proteinuria and/or hematuria - or abnormal ultrasound tests), on the impairment of the Glomerular Filtration Rate (GFR), and on the time component (as renal damage present for at least three months)[1].

For the purpose of diagnosis and treatment, CKD is stratified in stages, the last of them being called chronic renal failure. In this last stage, in order to survive the individual needs renal replacement therapy[1].

With the increasing number of people affected by CKD needing renal replacement therapy, this has become a public health problem since it is associated with several comorbidities and, consequently, with the need for public investment leading to high health expenditures[2, 3].

Brazil's unified health system offers three types of Renal Replacement Therapy (RRT) free of charge when the conservative treatment (with medications and a diet) is no longer efficient in keeping the patient stable, namely: Peritoneal Dialysis (PD), Hemodialysis (HD), and Kidney Transplant[4].

These therapies do not completely replace renal function, but are the possibility for the individuals to continue their normal and productive lives, as long as they can adapt to the changes and limitations that the treatment may impose, providing chronic renal patients with a better quality of life within their limits[5, 6].

In Brazil, HD stands out in quantitative terms; according to the census of the Brazilian Society of Nephrology, the estimated number of patients undergoing dialysis was 48,834, with 44,616 on hemodialysis[7]

Hemodialysis aims to extract the toxic nitrogenous substances from the blood and to remove excess water. For this, the blood, loaded with toxins and nitrogenous wastes, is diverted from the patient to a dialyzer that works as a filter with a semipermeable membrane where the exchanges take place, and then this blood is returned to the patient. This procedure for chronic patients is usually performed three times a week, in sessions with a mean duration of 4 hours[1].

In this context, changes in the lifestyle of this patient group are noticeable, starting with the principle of accepting their illness and recognizing the need to undergo HD. Thus, for many, hemodialysis therapy requires abandoning their daily social and work activities, the need for a strict diet restriction and adequacy, dependence on other people or on a caregiver to help them with their domestic tasks due to the physical impairment that the therapy entails, and the use of devices to assist in this adaptation process[8, 9].

Thus, qualified care for this patient group becomes essential, in order to meet their questions and needs related to the difficulties and changes caused by the substitute treatment. Nurses stand out for this care, since they exercise the role of health educators and perform this skill by creating strategies, developing a professional-patient/patient--professional horizontal communication, and establishing a trusting relationship with these individuals, recognizing the importan-

ce to place them as active agents of their treatments concerned with their health and self-care[10, 11].

In this perspective, it is essential that the nurses' actions are guided by theoretical basis, such as the Nursing Outcome Classification (NOC), a nursing assessment model that standardizes the title and the definition of the expected nursing outcomes for each individual affected by a certain disease, using universal language[12]. Therefore, it is believed that, through an analysis of the outcomes, nurses have subsidies to list the actions, as well as to recognize actions that are still unknown or not performed due to lack of understanding of the difficulties presented by the patients.

Therefore, this research aimed to analyze the knowledge of the chronic renal patients undergoing hemodialysis regarding this treatment, according to the indicators of the "Knowledge: Treatment procedures" nursing outcome.

METHOD

This was a descriptive, cross-sectional, and quantitative study held from March to September 2016 in a public reference hospital in nephrology of Recife - Pernambuco.

The population consisted of 74 patients undergoing hemodialysis at the cited service. The selection criteria were applied to the sample, the inclusion one being patients over 18 years of age with CKD medical diagnosis and undergoing hemodialysis; and the exclusion criteria being patients with a medical diagnosis of Acute Renal Failure, patients with difficulty in verbal communication that prevented data collection, and patients disoriented in relation to time, space, and at the autopsychic level; thus totaling a sample of 51 patients.

Data collection was carried out by two female nurses through interviewing the patients during the hemodialysis sessions by applying an instrument composed by two stages: the first with sociodemographic characterization, and the second with the "Knowledge: Treatment procedures" outcome of the NOC during the hemodialysis sessions.

To understand the indicators of the "Knowledge: Treatment procedures" outcome of the NOC, the first step was to construct the definitions of each indicator according to the degree of knowledge and then send them to three judges who were Masters in Nursing and who had their dissertations on the theme of Nephrology and Nursing Classifications to assess their adequacy.

The definitions were constructed after a search for literature in textbooks and in the following databases: National Library of Medicine and National Institutes of Health (PubMed), Latin American and Caribbean Health Sciences Literature (*Literatura Latino-Americana e do Caribe em Ciências de Saúde*, LILACS), and Scopus.

For the survey of articles in the databases, the words *conhecimento* and *hemodiálise* were cross-referenced for the LILACS database; and Knowledge and hemodialysis, for PubMed and Scopus. Subsequently, the selection criteria were applied to refine the search, the inclusion one being complete articles available for free in Portuguese, English or Spanish that addressed the theme of each indicator of the "Knowledge: Treatment procedures" nursing outcome through the

following guiding question: 'Which are the principles of hemodialysis?', in the databases selected for patients on hemodialysis during the previous five years (2012-2016). The exclusion criteria applied were the following: editorial articles and letters to the editor.

For the evaluation of the judges, each definition of the indicators and of the degrees of knowledge on the "Knowledge: Treatment procedures" outcome of the NOC featured a five-level Likert type scale, ranging from Completely inadequate to Completely appropriate. In order to refine the adequacy of each item, the scale was recoded dichotomously and, therefore, items classified as 1, 2, or 3 were considered inadequate, and items classified as 4 or 5 were considered adequate.

Subsequently, only the items considered adequate by at least two judges were left for the final version, these and those considered inadequate being adjusted according to the researchers' suggestions and acceptance.

Thus, with the final version of the instrument, it was applied after approval by the Research Ethics Committee of the Federal University of Pernambuco, CAAE: 53172216.9.0000.5208, in accordance with the provisions of Resolution No. 466/2012 of the National Health Council belonging to the Ministry of Health, which regulates research involving human beings.

For data analysis, a database was built which underwent statistical analysis using the SPSS version 16.0 program. From this analysis, descriptive statistics were generated with the absolute frequency, percentage, means, standard deviation, and percentiles for each variable. The analysis was based on the reading of descriptive statistics, as well as on the analysis of the p-value found, with their respective comments. The level of 5% was adopted for the statistical significance.

RESULTS

The chronic renal patients undergoing hemodialysis who participated in the research were aged between 20 and 89 years old, the majority being male (62.7%). The educational level ranged from no education to an incomplete third grade, with a mean of 9.07 years of study. Most of the interviewed participants receive a benefit provided by the government, and 29.4% mentioned they carried out other activities autonomously, such as hairdressers and sellers. With regard to the diagnosis time of CKD and HD, the sample ranged from three months to five years of hemodialysis, as shown in Table 1.

Regarding the indicators of the "Knowledge: Treatment procedures" nursing outcome of the NOC, the patients had no knowledge, limited and moderate knowledge, and did not have broad and/or substantial knowledge, as shown in Table 2.

DISCUSSION

The percentage of patients with CKD on dialysis in Brazil is approximately 90%, according to a census report by the Brazilian Society of Nephrology (*Sociedade Brasileira de Nefrologia*, SBN). Of these, nearly 60% are male with an age range between 19 and 64 years old[7]. This is a fact that approximates the sociodemographic profile of this patient group found in this study.

The analysis of the knowledge on hemodialysis in the studied patients took place through questions directed to each indicator present

Table 1. Characterization of the chronic renal patients according to sociodemographic data. Recife - PE, 2016.

Variables	n	%
Gender		
Male	32	62.7
Female	19	37.3
Marital Status	**n**	**%**
Has a partner	36	70.6
No partner	15	29.4
Origin	**N**	**%**
Metropolitan Region of Recife	51	100.0
Religion	**N**	**%**
Practitioner	43	84.3
Non-Practitioner	8	15.7
Occupation	**N**	**%**
Retired/Beneficiary	31	60.8
Others	15	29.4
Unemployed	5	9.8
Dialysis site	**N**	**%**
AVF	45	88.2
Permcath	3	5.9
Prosthesis	3	5.9

Columns1	Mean	Standard Deviation	Minimum Value	Maximum value	p-value*
Age	50.098	15.16609	20.00	89.00	0.403
Years of study	9.0784	3.31568	0.00	18.00	0.017
Family income	1.7843	1.06421	0.00	5.00	0.005
CKD Diagnosis Time	31.0588	16.45042	3.00	60.00	0.251
CKD Treatment Time	29.4706	15.82827	3.00	60.00	0.200
*p-value of the Kolmogorov Smirnov test					

in the "Knowledge: Treatment procedures" outcome of the NOC.

For the five indicators (procedure, purpose, stages, procedure restrictions, and correct use of the equipment) that scored from moderate to no knowledge, the questions were the following, respectively: What is Hemodialysis?/ What is the purpose/objective of hemodialysis?/ Which are the stages for performing hemodialysis?/ Which are the limitations/restrictions related to hemodialysis?/ How should the correct use of the hemodialysis machine be?

The answers to these questions were superficial and, in general, emphasized that it is a procedure that replaces the function of the kidneys, aims at maintaining the survival of the patients, needs three weekly sessions with weight measurement before and after each session, must impose water and food restrictions, limits the use of the AVF member, and implies the need to use products compa-

tible with the machine so that it will perform well and consequently fewer problems are generated that require maintenance services. Similar reports were presented in studies with chronic renal patients undergoing hemodialysis, indicating it as a treatment that promotes dependence on a machine to replace renal function and decreases the risk of death in these patients[7, 13, 14, 15].

It is known that renal therapy was initially created with the aim of reducing the risk of death from hypovolemia or hypervolemia. Currently, however, in addition to reversing the uremic symptoms and reducing the risk of death, the treatment seeks a better quality of life and the reintegration of the patients to society as economically and socially active individuals[4].

To perform hemodialysis, a number of stages must be followed, which can be described as: attending the dialysis clinic, generally three times a week, on alternate days and for approximately four hours; measuring weight and blood pressure before and after dialysis; sitting on armchairs and with a machine where your identified system is located; puncture of the venous access or opening of the central venous catheter by a qualified professional; the patient's blood is drawn through an arterial line, goes to the dialyzer or artificial kidney that allows for the passage of excess solutes and solvents in the body through a semipermeable membrane and returns to the individual through a venous line. During the procedure, the vital signs are continuously monitored[13, 16].

These stages must be performed in each session. The mean number of sessions per week is three, each one lasting four hours. This is a fact that brings limitations to the patient's

Table 2. Characterization of the patients undergoing hemodialysis treatment regarding their knowledge about the indicators of the "Knowledge: Treatment procedures" outcome of the NOC. Recife - PE, 2016

Indicators	No Knowledge		Limited Knowledge		Moderate Knowledge	
	n	%	n	%	n	%
Treatment procedure	10	19.6	39	76.5	2	3.9
Purpose of the procedure	1	2.0	47	92.1	3	5.9
Stages in the procedure	18	35.3	29	56.9	4	7.8
Precautions related to the procedure	21	41.2	30	58.8	-	
Restrictions related to the procedure	21	41.2	27	52.9	3	5.9
Correct use of the equipment	21	41.2	29	56.8	1	2.0
Adequate care of the equipment	25	49.0	26	51.0	-	
Adequate actions in the face of complications	7	13.7	44	86.3	-	
Side-effects of the treatment	31	60.8	20	39.2	-	
Contraindications to the procedure	50	98.0	1	2.0	-	

daily life, in addition to the water and food restrictions resulting from the treatment of chronic renal disease[8, 15, 16].

Hemodialysis does not completely replace renal function, but it is the possibility for the individuals to continue their normal and productive life, as long as they and their family are able to adapt to the changes and limitations that the treatment may impose, providing chronic renal patients with a better quality of life within their limits[5, 6]. Thus, the professionals of the multidisciplinary team are important agents in the process of treatment and adaptation of the patient[13, 16, 17].

For the indicators, precautions related to the procedure, adequate care of the equipment, adequate actions in the face of complications, and side-effects of the treatment; and contraindications to the procedure, in which the patients had no knowledge and/or limited knowledge, the questions were the following, respectively: What should be the precautions related to hemodialysis?/What appropriate care actions should be taken in the hemodialysis machine?/What adequate actions should be taken in the face of complications in the hemodialysis session?/Which are the side-effects of hemodialysis?/Which are the contraindications for hemodialysis?

Both the setting where hemodialysis is performed and the individual undergoing dialysis need precautions, such as: precautions with the setting keeping it quiet, comfortable and pleasant; need for sterile procedures in order to reduce infection rates, and care with vascular access, stimulating self-care, observing body manifestations, performing periodic examinations, and paying attention to the correct parameters programmed during HD[5, 13, 18].

Regarding the hemodialysis machine, adequate care consists of handling and maintaining the equipment correctly, and cleaning and periodically disinfecting the machine with water and compatible disinfectants, according to the use protocols of the equipment. For this indicator, limited knowledge on the part of the study participants was evidenced through the only understanding that compatible products are necessary for the machine to work correctly[18].

In view of the most common possible complications during the hemodialysis session, such as cramps, hypotension, headache, and chills, it is important that the patients know how to identify and express their symptoms to the team members so that proper care is provided, collaborating during the interventions, and following the medical guidelines. Therefore, a trained multidisciplinary team is needed in order to meet the needs related to common to severe complications[5, 13].

As for the side-effects of hemodialysis, we can signal the relative hypovolemia due to the rapid extraction of fluids and solutes; the feeling of tiredness and fatigue due to lack of erythropoietin; the risk of acute bleeding from the use of heparin in the circuit; the low immunity with susceptibility to infections; the limitation for interpersonal relationships, and the dependence on family members due to the need for support that the treatment requires[13].

There is no absolute contraindication for conducting hemodialysis sessions; however, there are relative contraindications, namely: patients with multi-factorial dementia, patients with hemodynamic instability, patients with multiple organ failure, and patients with ad-

vanced malignancy. A study reveals that, for these critically ill patients who are at risk of infection and immuno-compromised, palliative care has been increasingly accepted as a form of comprehensive care for terminally ill patients since their bodies cannot stand the hemodialysis sessions at this stage[19].

Given this context, it is clear that hemodialysis is a complex and long procedure, difficult to adapt to, and which requires a change in the lifestyle of the chronic renal patient. Therefore, knowing the disease and its treatment may contribute to successfully implementing the therapeutic scheme.

CONCLUSION

The chronic renal patients surveyed are divided among those who have moderate knowledge, limited knowledge, and no knowledge on hemodialysis.

It is worth highlighting that, in five indicators, the level of moderate knowledge was attained, but that they do not reflect a considerable percentage when compared to the percentage of limited knowledge among the sample participants.

Thus, the existence is considered important of spaces for conversation and permanent education between the multi-professional team (assuming their role as an educating agent) and the patients, so that they understand their disease process and assume their treatment with more responsibility.

The applicability of the nursing outcomes of the NOC in the clinical practice was verified through this research, offering subsidies that could facilitate a more adequate planning of the nursing actions in the health--disease process, promoting more efficient, comprehensive, and humanized care for this patient group.

The limitation of this study is the assessment of the knowledge of this patient group in a punctual manner; it is suggested to carry out new research studies that work with the theme of knowledge on the hemodialysis treatment continuously with interventions that promote health education in this patient group.

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