

# Nursing Care for Patients Experiencing Clinical Complications During Haemodialysis

ORIGINAL

Viviane Queiroga Linhares<sup>1</sup>, Anne Milane Formiga Bezerra<sup>2</sup>,  
Maria do Carmo Andrade Duarte de Farias<sup>3</sup>, Guilherme Gadelha Pereira de Carvalho<sup>4</sup>,  
Raquel Campos de Medeiros<sup>2</sup>, Maryama Naara Felix de Alencar Lima<sup>2</sup>,  
Edineide Nunes da Silva<sup>5</sup>, Francisco Geyson Fontenele Albuquerque<sup>6</sup>

## Abstract

**Introduction:** Patients with chronic renal disease treated by haemodialysis experience various changes in their daily lives, which they and their families need to adapt to and cope with.

**Objective:** To analyse the nursing care of patients with chronic renal failure on haemodialysis who experience clinical complications.

**Method:** A descriptive, exploratory study was conducted, using a quantitative approach. Data collection was performed using a sample of 73 patients at the Hemodialysis Center located at city of Patos-PB. The sample comprised 73 patients.

**Results:** 27 (37.0%) were female, aged between 20 and 88 years old. It was found that employees are 49.3% of respondents, in consonance to farmers with 31.5%. The most common complications were weakness (76.7%), headache (46.6%), cramp (43.8%) and pain (32.9%).

**Conclusion:** The trusting relationship between professionals and patients is paramount, because helps to improve adherence to treatment and, consequently, the reduction of complications; furthermore, educational and preventive actions are facilitated.

- 1 Bachelor's degree in Nursing, Integrated Colleges of Patos, \*.
- 2 Nurse, Teacher of Integrated Colleges of Patos, \*.
- 3 Academic Unit of Life Sciences, Teacher Training Center; Teaching and Research Manager at the Júlio Bandeira University Hospital, Federal University of Campina Grande (HUJB/UFCG/EBSERH), Cajazeiras, \*.
- 4 Academic Unit of Life Sciences, Teacher Training Center, Federal University of Campina Grande, Cajazeiras, \*.
- 5 Academic Unit of Nursing, Teacher Training Center, Federal University of Campina Grande, Cajazeiras, \*.
- 6 Student of Medicine, Academic Unit of Life Sciences, Federal University of Campina Grande. Cajazeiras, \*.

\*: Paraíba, Brazil.

## Contact information:

**Anne Milane Formiga Bezerra.**

**Address:** Rua Pedro Marques de Medeiros, 355 Bairro Jardim Rogério. CEP: 58840-000. Pombal, PB.

**Tel:** (83)999094813.

 [annemilane\\_pb@hotmail.com](mailto:annemilane_pb@hotmail.com)

## Keywords

Nursing Care; Haemodialysis; Quality of Life.

## Introduction

Chronic kidney disease (CKD) is defined as the loss of kidney function that may occur gradually, with renal damage or decreased function for three months or more, regardless of aetiology. When this loss

occurs abruptly, acute renal injury occurs, resulting in urea retention in addition to other residual products, and in the dysregulation of extracellular volume and electrolytes [1].

The treatment of CKD should include specific therapy, assessment and care of comorbidities, and the prevention and treatment of complications arising from impaired renal function. When conservative treatment is no longer sufficient and there are uraemic signs and symptoms, such as disorientation, reduced level of consciousness, nausea, vomiting, and other potentially life-threatening complications such as hyperkalaemia, renal replacement therapy is needed. Among the various methods of this replacement therapy is haemodialysis, which can be used for the treatment of both chronic and acute kidney disease [2-3].

Haemodialysis is a mode of dialysis during which the patient's blood is circulated extracorporeally and filtered through a semipermeable membrane, thereby removing excess liquids and the waste products of metabolism; for example, urea, creatinine, and electrolytes. During this procedure, complications that require hospitalisation may occur [4]. An integrative review indicates that, in 30% of haemodialysis sessions, complications may occur, such as infection in a double lumen catheter, arterial hypotension or hypertension, hypothermia, muscular cramps, cardiac arrhythmias, headache, hypoxaemia, pruritus, allergic reactions, chest and lumbar pain, nausea and vomiting, gas embolism, and fever and chills. These complications are caused by the process of extracorporeal circulation and the withdrawal of large quantities of liquids in a short time [5].

Nursing professionals are responsible for a large part of the care during haemodialysis and are therefore in a privileged position to reduce the possibility of complications affecting the patient, in addition to detecting these complications early and performing the necessary actions to minimise damage [6].

Nurses also play an important role in the follow-up of these patients. Their proximity to them, three times a week, favours sharing information, guidance and clarification of doubts, among other aspects, to provide holistic and personalised assistance. For this relationship to occur, the nurse initially needs to get to know the users, from their initial evaluation to the follow-up in the haemodialysis sessions, hence the relevance of this study.

We therefore carried out this study to alert the nursing professionals working in haemodialysis units to the interurrences that may arise in patients and to use alternatives to prevent and minimise the damage and sequelae that may occur during the course of treatment.

This study will contribute to the development of educational activities, based on individual needs, with the aim of orienting users about their illness, clinical interurrences, changes in lifestyle, treatment, care of venous access, among others. In view of the above, this study aimed to analyse nursing care in the clinical interurrences of chronic renal patients who undergo haemodialysis.

## Method

We used a descriptive, exploratory and quantitative approach, to examine the deeper and objective aspects of the subject under study. Data were gathered from a sample of patients at the Hemodialysis Center in the Nephron located at Rua Juvenal Ledo, S/N, in Belo Horizonte neighbourhood, municipality of Patos -PB.

The research population comprised 73 patients undergoing haemodialysis. Given the probabilistic criterion, the sample size was arrived at using the formula to calculate the finite population sample, adopting a confidence level of 95%,  $\alpha = 5\%$  and a sample error  $\epsilon = 5\%$ . Thus, considering 98 patients who undergo haemodialysis sessions at the institution, the required sample size was 73 participants.

The data were collected by interview during August and September, 2016.

Patients with a diagnosis of CKD who had been receiving haemodialysis for at least six months, and who agreed to sign the informed consent term, were included in the study. Those who did not understand the research protocol, or were not willing to participate in the research, were excluded.

Data were analysed by the SPSS (version 21). Relative and absolute frequency descriptive statistics were used, and Pearson's chi-square, with Yates correction, was used as an inferential test when necessary. The accepted statistical significance was  $p < 0.05$ .

The research was carried out with the authorisation of the coordinator of the institution, taking into consideration the ethical aspects in research involving human beings, as described in Resolution 466/2012 of the National Health Council, which regulates research involving human beings [7]. The research project was approved by the the Research Ethics Committee of the Integrated Colleges of Patos, located in the city of Patos - PB, which obtained an opinion n ° 1769672, CAAE n ° 58598516.8.0000.5181.

## Results

Results from **Table 1** to **8**.

**Table 1.** Sociodemographic data.

	n	%
Sex		
Female	27	37.0
Male	46	63.0
Age		
20 to 40 years	9	12.3
41 to 60 years	29	39.7
61 to 88 years	35	47.9
Schooling		
No schooling	34	46.6
Complete primary education	29	39.7
Full high school	10	13.7

Family income		
< Minimum salary	21	28.8
1 Minimum salary	36	49.3
> Minimum salary	16	21.9
Marital status		
Married	28	38.4
Single children	15	20.5
Widowed	20	27.4
Separated	7	9.6
Divorced	3	4.1
Place of residence		
In Patos	17	23.3
Nearby cities	56	76.7
Place of residence		
In Patos	17	23.3
Nearby cities	56	76.7
Lives with		
Self employed	4	5.5
Husband	25	34.2
Alone	7	9.6
Wife and son	5	6.8
Children	24	32.9
Parents	8	11.0

**Source:** Research data, 2016.

**Table 2.** Occupations of the sample.

Occupation	n	%
Farmer	23	31.5
Works from home	8	11.0
Electrician	2	2.7
Merchant	4	5.5
Baker	1	1.4
Driver	3	4.1
Seamstress	2	2.7
Student	1	1.4
Retired	20	27.4
Welder	1	1.4
Teacher	4	5.5
Butcher	1	1.4
Fisherman	1	1.4
Aux. Fittings	1	1.4
Tech. Drugstore	1	1.4

**Source:** Research data

**Table 3.** Complications during dialysis treatment.

Occupation	n	%
Weakness	56	76.7
Cramp	32	43.8
Arterial hypotension	19	26.0
Headache	34	46.6
Weight loss	5	6.8
Itching	2	2.7
Anaemia	1	1.4
Arterial hypertension	1	1.4
Ache	24	32.9
Weight gain	3	4.1
Intestinal constipation	2	2.7
Haematoma in the fistula	9	12.3

Source: Research data, 2016.

**Table 4.** Description of events during haemodialysis.

	n	%
Gained weight		
No	73	100.0
Developed oedema		
No	73	100.0

Source: Research data, 2016.

**Table 5.** Description of complications after haemodialysis.

	n	%
Hypotension	20	27.4
Weakness	54	74.0
Nausea	18	24.7
Does not feel anything	1	1.4
Others	3	4.1

Source: Research data, 2016.

**Table 6** shows that most of the sample (61.6%) classified their health as regular. Half (50.7%) felt in better health compared to a year ago. Most (89.0%) expected kidney transplants, and 87.7% had already participated in some educational activity performed by nurses in the haemodialysis sector. Nurses had given guidelines on the dialysis to all the patients; all had received information on the intercurrents that could arise during treatment and said that the nurses identified the intercurrents at the time they occurred.

**Table 6.** Description of the classification of the perceived health, treatment and orientation by nurse.

Description of the classification	n	%
How do you rate your health these days?		
Very good	1	1.4
Good	27	37.0
Regular	45	61.6
How do you rate your health compared to a year ago?		
Much better now	37	50.7
A little better now	26	35.6
Roughly the same	10	13.7
What is your expectation regarding treatment in the future?		
Getting the kidney transplant	65	89.0
Advances in haemodialysis technology	8	11.0
You received instructions from the nurse about dialysis?		
Yes	73	100.0
Did the nurse advise you about the intercurrents that could arise during the dialysis treatment?		
Yes	73	100.0
Did the nurse identify the intercurrent at the time it happened?		
Yes	73	100.0
Have you ever participated in any educational activity led by the nurse?		
Yes	64	87.7
No	9	12.3

Source: Research data, 2016.

**Table 7** shows that proportionally, more men participated in educational activities compared to women ( $p = 0.05$ ). Another statistically significant association was between income and participation in educational actions.

**Table 7.** Associations between participation in educational activities and sociodemographic data.

Variables	Have you ever participated in any educational activity led by the nurse?				p
	Yes		No		
	n	%	n	%	
Sex					
Female	21	77.8	6	22.2	0.05
Male	43	93.5	3	6.5	

Have you ever participated in any educational activity led by the nurse?					
Variables	Yes		No		p
	n	%	n	%	
<b>Age</b>					
20 to 40 years	9	100.0	0	0.0	0.48
41 to 60 years	25	86.2	4	13.8	
61 to 88 years	30	85.7	5	14.3	
<b>Schooling</b>					
Illiterate	30	88.2	4	11.8	0.94
1° Grade complete	25	86.2	4	13.8	
2° Grade complete	9	90.0	1	10.0	
<b>Family income</b>					
< 1 Minimum salary*	21	100.0	0	0.0	0.02
1 Minimum salary	31	86.1	5	13.9	
> 1 Minimum salary	12	75.0	4	25.0	
<b>Marital status</b>					
Married	23	82.1	5	17.9	0.20
Single children	15	100.0	0	0.0	
Widowed	18	90.0	2	10.0	
<b>Where do you live</b>					
In Patos	16	94.1	1	5.9	0.36
Nearby cities	48	85.7	8	14.3	
<b>Have children</b>					
Yes	50	84.7	9	15.3	0.12
No	14	100.0	0	0.0	

**Source:** Research data, 2016. \*: Corretion of Yates.

**Table 8.** Associations between current health status classification and sociodemographic data.

How do you rate your health these days?					
Variables	Good		Regular		p
	n	%	n	%	
<b>Sex</b>					
Female	14	51.9	13	48.1	0.05
Male	13	28.9	32	71.1	
<b>Age</b>					
20 to 40 years	6	66.7	3	33.3	0.15
41 to 60 years	10	35.7	18	64.3	
61 to 88 years	11	31.4	24	68.6	
<b>Schooling</b>					
Illiterate	10	29.4	24	70.6	0.01
1° Grade Complete	9	31.0	20	69.0	
2° Grade Complete	8	88.9	1	11.1	

Family income					
< 1 Minimum salary	13	61.9	8	38.1	0.02
1 Minimum salary	9	25.0	27	75.0	
> 1 Minimum salary	5	33.3	10	66.7	
<b>Marital status</b>					
Married	9	32.1	19	67.9	0.37
Single children	8	53.3	7	46.7	
Widowed	7	35.0	13	65.0	
<b>Where do you live</b>					
In Patos	8	47.1	9	52.9	0.35
Nearby cities	19	34.5	36	65.5	
<b>Have children</b>					
Yes	18	31.0	40	69.0	0.02
No	9	64.3	5	35.7	

**Source:** Research data, 2016.

## Discussion

According to data from the Brazilian Society of Nephrology [8], 58% of the patients were male, corroborating this study. The percentage of dialysis patients aged less than or equal to 12 years, between 13 to 18, 19 to 64 years, 65 to 80 years or over 80 years was 0.3%, 0.7%, 66.4%, 27.9% and 4.6%, respectively [9]. However, in the study by Moreira, Araújo and Torchi (2015) [10] there was a predominance of females among the study participants; it should be emphasised that participation in this research was freely chosen and female patients were more open to dialogue and participation.

The educational levels of the patients were similar to those found in another study conducted in Natal/RN, Brazil and divergent from that found in São Paulo. Thus, it is observed that most patients with CKD have low levels of schooling and this may possibly interfere with treatment adherence, since there may be some difficulty in their understanding of the disease and its complications [11, 12].

The family income of these patients tended to consist only of a minimum wage and almost all received social security assistance. Most patients depended on the transportation offered by their city halls and made long journeys, often staying all



day outside their city of origin and waiting for the other patients who were using the same transport. This reflects the centralised distribution structure of dialysis centres in the country, which is mainly a consequence of the lack of public investment in the opening of new haemodialysis centres in smaller cities.

**Table 2** shows that the many patients were farmers (31.5%) and retirees (27.4%); usually, patients who undergo dialysis treatment are able to retire because of their inability to perform some activities, although they are capable of carrying out activities of daily living.

The low score in the working condition category demonstrates the impending work-related problem, in which most people receiving haemodialysis therapy cannot establish and/or just work, probably due to the time spent on treatment, and the presence of physical complaints of weakness, fatigue, indisposition and general malaise on the days of haemodialysis. This makes it impossible to make the physical effort needed to work, especially bearing in mind that the labour market in Brazil offers few opportunities for people with such limitations [13].

Coitinho et al. (2015) [14] found that 89.6% of their participants lived with relatives or partners. This finding is reasonable, given that patients with chronic renal conditions, especially when elderly, need help with daily activities such as hygiene, feeding, and medication, among others. In this context, it is emphasised that the health and disease process involves the whole social, political and cultural context of the individual, including his or her family. Thus, limitations and changes in CKD and haemodialysis affect the lives of patients and their families, who need to reorganise and adapt to the changing needs of the patient [15].

Professionals should be aware of the adverse events that may occur and their impacts on health care, since the incidence of these events is an important indicator of quality of care. The people should

be addressed in educational institutions, at middle, higher or postgraduate levels and constantly discussed in health institutions [16].

It is known that complications during dialysis may occur, both before and after the procedure, such as cramps, hypotension, weakness, pain and nausea. The study from Rio Grande do Sul, Brazil, also presented similar results [17]. In the present study, the interurrences during and after haemodialysis were found to be similar.

**Table 4** shows that none of the 73 participants gained weight and did not develop oedema during the haemodialysis sessions. Contrary to the results of the study by Coitinho et al. (2015) [14], which showed that most of their patients (85.7%) gained weight during haemodialysis; oedema was found in the legs (20.8%) and in the feet (14.3%). Coitinho et al. also reported cramp (53.2%), hypotension (40.3%), headache (35.1%) and weight loss (32.5%). It should be noted that these interurrences can interfere in the evaluation of health in general, and consequently a reduction the quality of life of these patients; therefore, they require adequate assistance from the nursing team, with the aim of preventing or minimising their occurrence.

The nurse is a professional who plays a key role in the overall process of treatment of patients who need haemodialysis to improve their quality of life. Therefore, it is believed that there is not enough measures for the control of renal disease. It is also necessary to confirm and follow up the diagnosis of CKD, to develop strategies that assist the patient during haemodialysis in order to achieve a good outcome, as well as providing adequate follow-up of patients with nephropathy [18].

When diagnosed with CKD, patients generate that impact due to treatment and lifestyle changes, but over time they realise that haemodialysis is necessary for survival, then accept the pathology and adapt to their new routines.

A study that evaluated the quality of life of 72 patients with kidney disease on haemodialysis, iden-

tified that 27.8% considered that their health was approximately equal to, or much better than, a year ago [19]. These results corroborate those of the present study, since haemodialysis makes possible a positive evaluation of health in general, especially by reducing some symptoms that may occur before haemodialysis sessions, such as malaise, aesthenia, loss of appetite, indisposition and, most often, the fear of death.

All patients in our sample who received less than one salary minimum participated in the educational activities (**Table 7**). The sample comprised more male participants, this should be a fact to be considered in the above results, since men take less care of their health than women.

The care of chronic renal patients is highly complex, due to the great impact that the disease has on their way of life and on their relatives; the condition often arises abruptly, requiring changes in their lifestyle to adapt to the limitations imposed by the treatment. Within this context, we understand that patients with CKD may need considerable attention from the health team to improve their quality of life.

Fujii and Oliveira (2011) [20] highlighted several factors that hinder cohesion in the treatment of patients with CKD, among them the reduced number of professionals in the multidisciplinary team (psychologists, nutritionists, social workers). This support team assists the nurse in the care of these patients, providing the range of care and adaptations required in the daily life of this population.

It is assumed that the complications arising during or after the dialysis session are related to the clinical condition of the patient, the electrolyte imbalance, the quality of dialysis controls. In this sense, the nurse must manage the care provided, from the identification of the individual needs of each patient, by means of the nursing process. Nursing care involves systematisation, monitoring, detection and intervention in the event of intercurrents, in order to guarantee safe and high quality nursing care [19].

It is understood that patients' difficulty in controlling their own health is due to the complexity of the treatment. A study has associated this difficulty with socioeconomic factors and ignorance of the pathological process, which are the main factors responsible for accelerating the course of the disease. In addition, the fragility of support for the patient regarding living in society and in the family can also contribute to non-adherence to the therapeutic regimen [21].

It is known that kidney failure causes important limitations to patients and this often leads to withdrawal from society and retirement from work. Among the retired patients, most received less than the minimum wage; similar data have also been found in other studies. Most of the data found showed a monthly income up to a minimum wages; this shows that Brazilian patients undergoing renal replacement therapy are highly likely to have low purchasing power, which will negatively influence their quality of life regarding the acquisition of medicines and food [22].

## Conclusions

Our results showed that the most frequent intercurrents were weakness and cramp, confirming the findings of other studies. These intercurrents are associated with the patient's clinical condition, electrolyte imbalance and quality of the dialysis; individualised and expert care of the attending team is required in order that they may be prevented or minimised.

Dialysis treatment positively affects the perception of health, mainly by reducing the symptoms related to CKD although, during haemodialysis, the patient may experience clinical intercurrents. The nurse's role involves the rapid detection of these and the ability to intervene, in order to facilitate the effectiveness of this procedure and a better state of health of the client. However, care should be taken with the practice of standardised nursing interven-

tions so that they do not make care restricted and automatic, and thus insufficient to meet the complexity and individuality of each client.

Nursing assumes a privileged role; nurses are in constant attendance on the patient during the thrice weekly dialysis, and this favours the possibility to know and observe the patient, and to detect changes in his or her general state. Furthermore, this approach favours a bonded and trusting relationship between professionals and patients, which can contribute to improved adherence to treatment and consequently reduce intercurrents, through educational activities and the prevention of damage resulting from intercurrents and the evolution of the disease.

More studies are needed within different nursing contexts involving the haemodialysis process. These studies should also address nursing diagnoses and interventions, to direct nurses' work and contribute to the effectiveness of care, in order to prevent intercurrents and to encourage early intervention if they did occur, thus minimising their undesirable effects and positively influencing patients' well-being and their perceptions about their health.

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