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CENTRAL VENOUS CATHETER SELF-CARE AMONG PATIENTS UNDERGOING DIALYSIS

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ABSTRACT

It aimed to verify the self-care of patients undergoing dialysis with Central Venous Catheter (CVC), identifying the social profile and listing the actions of self-care with the device. This is a descriptive exploratory study of a quantitative approach, carried out in a Dialysis Clinic in the State of Pernambuco; the data were collected through questionnaires and interviews with 59 patients undergoing treatment in the period of September 2016, and then compiled on Excel software, for the presentation of the variables. Among the participants, 33.91% are under treatment for more than 3 years. Sum 67.80% already in possessed from 1 to 4 devices and 47.01% have been careful not to wet the dressing/catheter, the guidelines were held at 71.20% by nurses, 67.81% reported that the risk of using this type of access is the risk of infection only 30.50%, unaware of any risks and 32.20% report having difficulties with the CVC. It is concluded that the patients have some knowledge about their catheter care, but they are not fully clarified. Given this, it is necessary to make amends and studies dealing with this subject, supporting protocols aimed at the care in home. In this way we seek to contribute to the preparation of a newsletter, as a complement to our studies.

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INTRODUCTION

Chronic Kidney Disease (CKD) is characterized by the functional loss of the kidneys that occurs progressively and irreversible (Lins 2013; Silva *et al.,* 2015; Santana *et al.*, 2013). It is a silent disease that presents high mortality (Melo *et al.,* 2013). Who suffers of CKD has a survival subject to artificial blood filtering methods, called Renal Therapies Instead (RTI). In Brazil, the most used method is the hemodialysis (HD), this treatment consists in an extracorporeal circulation, driven by a pump to a filter composed of a semi-permeable membrane, where blood filtration occurs by diffusion (Pereira *et al.,* 2013; Siviero *et al.,* 2013). It is essential that patients undergoing dialysis, vascular access, primarily elected as immediate access, Central Venous Catheter (CVC), then cooks the arteriovenous fistula (AVF), defined as permanent access (Pereira *et al.,* 2014). These accesses expose the patient to the risk of contracting infections by microorganisms that may be present on the skin or even in common use tools during treatment (Ferreira *et al.,* 2014). As Santos *et al.,* (2014), it is estimated that more than half of health-related infections in patients with CKD are associated

with any intravascular device; and to avoid such an event it is necessary to count with quality assistance provided to them. The law of the Professional Practice of Nursing, (N 7,498), in its first paragraph, item (I) of article 11, describes that the nurse is responsible for the prevention and control of Healthcare-Related Infections (IRAS), being responsible for the direct care with maintenance and assessment of the access way (Santos *et al.,* 2014). Frazão *et al.,* (2014), reported several nursing diagnoses for patients on dialysis, where the risk of infection has highlighted. Lins *et al.,* (2013), show that this risk is notified as a second cause of death among kidney patients, since the permanent need for dialysis Access translates a constant exposure to risk factors. In this context, semi-implanted/CVC, require dressings on their exposed segment after each use (Silva *et al.,* 2014), where the largest number of infections in patients under dialysis procedures are related to CVC. Santos *et al.,* (2014) reported that more than half of the health-related infections are linked to any intravascular device. Extrinsic factors as failures in handling techniques, patient protection standards and lack of permanent education of the professionals should be considered (Santos *et al.,* 2014). In this way, the patients involved in this process as active participant should be directed as to the care to prevent infections by venous catheters. And, these guidelines shall begin at the time of their deployment, and at each handling, it must be preceded by proper used for antisepsis (Could *et al.,* 2013).

According to the ways of preventing infections, it is recommended to the professional to establish the maximum barrier protection and to keep the handling procedure totally sterile. The dressing should be changed every two days or when they are wet, the carelessness in maintaining catheter connections unprotected favors colonization of the hub (Santos *et al.,* 2014). And, under this discussion, Ferreira *et al.,* (2014) alert to the major risk factors that can lead to infection, among them, the dangers of multiple patients simultaneously making dialysis in the same environment, the manipulation of the devices, as well as the catheter for long periods. As Medeiros *et al.,* (2013) the hemodialysis treatment is based on the triad: patient, professional and machine. Therefore, the contribution of each of the elements is crucial to the success of the treatment. The nurse needs to raise awareness of his importance in the healing process, rehabilitation, humanization, prevention and education for self-care of the patient, considering the functions he can carry on his professional activities. So, from this perspective, Health Education can conflagrate as necessary actions for the prevention and control of infection, which can be total for people with CKD (Pereira *et al.,* 2013). For this, the study aimed to verify the self-care of patients under dialysis with their CVC, social public profile this with CVC, as well as the number of Central Venous Access (CVA) and last access time; list the actions of self-care with the CVC and correlate the actions of self-care with the CVC with the envisaged by the Hospital Infection Control Committee (HICC).

MATERIALS AND METHODS

This is a descriptive, exploratory study of a quantitative approach, since it starts with a phenomenon of interest. However, rather than simply observe and describe this phenomenon, the exploratory researchers investigate its nature, how manifests and other related factors, including factors that might be its cause (Polit *et al.,* 2011). The present study was conducted in a Dialysis Clinic located in the city of Cape of Santo Agostinho-PE, its population was composed of patients with CKD under hemodialysis treatment, for the sample were used the following inclusion criteria: be doing use of the CVC to the treatment, being more than 18 years old and agree voluntarily to research, being excluded patients who were not in use of the CVC, under the age of 18 and those who did not agree voluntarily to research. The initial population was of 61 patients with CVC, but only 59 individuals were in accordance with the selection criteria. Among the sample excluded, patient refusal 1 and 1 did not present clinical conditions favorable for research collaboration. For data collection, a unique tool of the researchers, formulated with closed issues and objectives the following steps: survey of social data and observation of self-care with the CVC. This study took the resolution N 466/12 of the National Health Council (CNS). Data collection was carried out after approval by the Research Ethics Committee (CEP) under the opinion of CAAE: 58932016.9.0000.5289, the data were collected individually, with interview and completion of the informed consent (TFCC). For the analysis of data took place in descriptive form of the data using the Excel software, forming tables for presentation of the variables.

RESULTS AND DISCUSSION

Analyzing the table 1, 51 participants, note that there is prevalence with individuals ranging in age from 48 to 57 years old, 35.59% and the same percentage equivalence for 58 to 67 years old.

Table 1. Characterization of the population under dialysis interviewed on CDC-PE, as age and education. Cape of Santo Agostinho, September 2016

Variables	N	%
Age (Years old)	59	
00 – 26	2	3,39
27 – 37	2	3,39
38 – 47	9	15,25
48 – 57	21	35,59
58 – 67	21	35,59
68 – 77	4	6,79
Education	59	
Illiterate	11	18,64
Elementary	42	71,19
High school	4	6,78
Higher education	2	3,39
Postgraduation	-	-
Gender	59	
Male	22	37,29
Female	37	62,71
Marital status	59	
Single	22	37,29
Married	33	55,94
Widower	3	5,08
Divorced	1	1,69

According to Table 1, it notes an adult prevalence in hemodialysis service; this may be by increasing the perspective of life for patients under dialysis, and can come from technological and scientific advances related to this public. As, Sesso *et al.,* (2016) in his study of the Brazilian Investigation of Chronic Dialysis (IBDC), in 2014 census, patients under dialysis present prevalence of subjects with age range between 19 to 64 and 65 to 80 years of age. In the study

of Costa *et al.,* (2016) there is prevalence of subjects 51 years old. To the level of education, the table 1 points a prevalence of individuals who own the elementary school, 71.19%. However this research could not set it complete or incomplete. Nogueira *et al.,* (2016) points out that patients with CKD are few that have as level of education elementary school complete and incomplete. As regards the gender there is a predominance among the respondents of the female gender (62.71%), contrary to several literature where the prevalence of male audience, which can be connected to the various duties of the female sex in society, in which the time to take care of health is not the same and is no longer a priority. In the study, Sesso *et al.,* (2016), the Census of the Brazilian Society of Nephrology of 2014 presented a male prevalence. Yet, the study of Bailey et al., (2016) there was a predominance of the female. Analyzing the marital status, note that the public married (55.94%) gives more than half of the public interviewed. According to Nogueira *et al.,* (2016), most patients undergoing hemodialysis of their sample also were married.

Table 2. Characterization of the population under dialysis interviewed on CDC-PE, as children, aspects of their escort, familiar with CKD and degree of kinship. Cape of Santo Agostinho, September 2016

Variables	N	%
Children	59	
Yes	35	59,32
No	24	40,68
Kinship of Escort	(N* = 35)	
Wife/Husband	12	34,28
Daughter/Son	14	40,03
Sister/Brother	2	5,71
Sister/Brother in law	2	5,71
Niece/Nephew	3	8,57
Granddaughter/Grandson	1	2,85
Hired	1	2,85
Familiar with the CKD	59	
Yes	7	11,9
No	52	88,1
Kinship of the relative	(n* = 07)	
Father	1	14,28
Mother	-	-
Brother	4	57,16
Cousin	1	14,28
Nephew	1	14,28
Uncles	-	-
N*= multiple choice questions;		
CKD = Chronic Kidney Disease		

As described in Table 2, the respondents, 66.11% have children. This is important because the family Constitution, whereas the family serves as a support, intensifying the family ties and support of this pathology. According to Siqueira *et al.,* (2015), says that several changes occur in the daily life of the patient with chronic renal and his family suffers as much as and that can trigger so many physical damage, such as social and emotional. In relation to the monitoring of the individuals interviewed, 59.32% have escorts in their treatment, where 40.03% are children. In this table, it should be noted that the family affects increasingly intensifies, as this role is represented by the time the son accompanies the patient to the hemodialysis service, serving as emotional support before the treatment of the disease. According to Siqueira *et al.*, (2015), report that the family is the main source of support, before its consequences and complexities through the under hemodialysis treatment. As the families of those with CKD, 88.10% of respondents did not have relatives with CKD. Of 11.90% who have relatives with CKD, 57.16% reported that the relative is a brother. On the above, it is seen that beyond the pathologies that can trigger kidney dysfunction, the hereditary factor must be considered. Santos *et al.,* (2016) point out that the pre-existence of CKD among family members (first and second degree) of kinship for predisposition to new cases of CKD.

Table 3. Characterization of the population under dialysis interviewed on CDC-PE, HD time. Cape of Santo Agostinho, September 2016

Variables	n = 59	%
Duration of HD*		
00 – 06 months	13	22,03
07 – 11 months	6	10,17
12 months (1 year)	4	6,78
13 – 23 months	4	6,78
24 months (2 years)	5	8,47
25 – 34 months	1	1,69
36 months (3 years)	6	10,17
More than 3 years	20	33,91

HD* Dialysis

According to Table 3, there is a predominance of individuals who perform hemodialysis for more of 3 years, representing 33.91%. As reported in this study, for the completion of treatment under hemodialysis is crucial a venous access route. The type of access on the basis of urgency is the CVC, this device can be replaced by AVF, but will depend on the conditions of veins and arteries to the making of this, that not to be favorable or not succeed with the AVF, use for a longer period of CVC. Daugirdas *et al.,* (2013) reported that patients in whom no immediate conditions for preparation of AVF in these cases is indicative of venous catheter use for a longer period. To those individuals with cardiomyopathy that keep blood pressure levels or appropriate access streams also have this call.

Table 4. Characterization of the population under dialysis interviewed on CDC-PE, as the durability of the last access and amount of catheter already used. Cape of Santo Agostinho, September 2016

Variables	N	%
Durability of last access	59	
Less than 1 month	8	13,54
01 - 04 months	22	37,29
05 - 08 months	9	15,25
09 – 11 months	-	-
1 year	7	11,90
1 year and 6 months	1	1,69
More than 2 years	3	5,08
Could not answer	9	15,25
Amount of catheters	59	
01 – 02	20	33,90
03 – 04	20	33,90
05 – 06	12	20,34
07 – 08	4	6,78
More than 9	3	5,08

On characterization of Table 4, concerns the durability of the CVC found that the durability of last access had a higher variable of time between 01-04 months with 37.29% of respondents. Analyzing the data expressed above, it has been seen that the durability of CVC's own life on average described in the readings carried out, that in your most lasting till 6 months (Daugirdas *et al.,* 2013). It is necessary to have technical handling care and patient care in order to avoid complications arising from the CVC, Demystifying that not

just the watering is an aggravating factor for the possessor of this access. Medeiros (2015), in his study, reports that the stay will depend on the insertion site, and reports a local perspective, where they last 05 days in femoral vein, and 21 days in jugular veins and subclavian veins. When one observes the amount of CVC already deployed, it is seen that each individual has had the need to do substitutions on average of the 01 02 03 04 devices and the devices on the same percentage proportion of 33.90%. According to ANVISA (2008), there is no need for periodic exchanges stipulated; the exchanges are made as needed. Daugirdas *et al.,* (2013), claim that the inadequate blood flow through these devices are important issues raised by early disorders (faulty positions, twisting or thrombosis, which cause positional occlusion during treatment) or late (blood clots fibrin thrombi murals, systemic thrombolytic), however the infection is the main cause of loss of the catheter. Medeiros (2015), reports that the exchange of catheter should be made depending on local conditions and clinical picture of the patient.

Table 5. Sample characterization about self-care, and guided them on the CDC-PE of the Cape of Santo Agostinho, Sep-2016

Variables	n	%
Self-care	59	
Yes	59	100,00
No	-	-
Type of care	(n* = 117)	
Not watering	55	47,01
Dressing at home	4	3,42
Avoids	14	11,96
Don't let others handle	19	16,24
Only the professional handling	25	21,37
Guided care	59	
Nurse	42	71,2
Doctors	8	13,56
Nursing technician	1	1,69
Doctor and nurse	5	8,47
Another patient	1	1,69
All the team	2	3,39

N*: Multiple choice multiple

In Table 5, about self-care, all respondents, 100.00% consider that take good care of their CVC and among healthcare 47.01% report that the Act of watering is harmful, it is worth pointing out that 40% of respondents pointed only a careful among the alternatives offered. The literature about this issue is scarce. Nursing actions described are how much care the device handling techniques aimed at preventing infection. Nogueira *et al.,* (2016), report to the domiciliary care (both with the CVC as AVF) there is a lack of information, and may result in damage to the preservation of complications. Santos *et al.,* (2014), report actions regarding the technique of handling the CVC and the dressing of its insert, highlighting the existence of studies that suggest a daily bath of chlorhexidine 2%. The articles studied by they report on continuing education for the nursing staff only, since the manipulation of the CVC must be conducted by a nurse and his team, for having the need for knowledge and skills. Nogueira *et al.,* (2016), noted that patients using CVC use only the care not to wet the catheter. With regard to the professional that guided the care with the CVC, 71.20% of respondents reported that it was the nurse. According to Saad *et al.,* (2013) the nurse cannot be restricted to properly perform the techniques, but also in meeting the needs of the patient, as this is the individual who has the role of educator, transferring the patient safety and support, recognizing him as agent of his self-care. Nogueira *et al.,* (2016), claim that the subject requires further investigation to improve self-care at home on his maintenance access. Pereira *et al.,* (2013) still adds that the role of the Nurse Educator also covers up the patient's family, because all (patient and family) need to understand about the disease and your treatment, in order to keep health and prevent future complications.

Table 6. Characterization of the sample about the risk of infection, use, utility, motif of the self-withdrawal not and self-perception as the CVC. Cape of Santo Agostinho, September 2016

Variables	n	%
Risk of the use of central venous access	59	
Unknown	18	30,50
Yes. Infection	40	67,81
Yes. Infection, embolism, hemorrhage	01	1,69
Reasons of Infection	(n * = 100)	
Wet	39	39
Wrong handle	10	10
Lack of hygiene	39	39
Airway	02	2
Dirty hands	10	10
Access utility	59	
Treatment of HD	53	89,84
To assure that will do HD**	05	8,47
To do later the AVF***	-	-
To prepare the medicine	01	1,69
Reason not to withdraw the catheter	(n* = 65)	
It offers risk	44	67,71
Difficult placement	05	7,69
Hurts	02	3,07
Bleed very	08	12,30
Will be placed another	04	6,15
Does not make dialysis	01	1,54
There is no other access	01	1,54
Daily difficulties	59	
Yes	19	32,20
No	40	67,80
Type of difficulty	(n* = 19)	
Embarrassment	14	73,68
Depression	02	10,53
Inconvenience and embarrassment	03	15,79

N*: multiple choice; ** HD: hemodyalysis; *** AVF: arteriovenous fistula

As shown in Table 6, 67.81% of patients surveyed reported that the infection is one of the main risks offered by the CVC. We analyzed according to the above data, the knowledge about the potential health risks related to CVC presented by the interviewees was that of infection, where in fact is the most recurring factor during the course of treatment and more alerted to the hemodialysis patients. According to Medeiros (2015) and Daugirdas *et al.,* (2013) infectious complications of vascular access are the main sources of morbidity and mortality among patients who do the hemodialysis treatment. Silva (2016), reports that there is a high frequency of septic complications, since local infection until systemic compromise. As the causes of infection reported by patients interviewed, the main reasons are given by the fact of wet dressing of CVC, 39%, and the lack of hygiene in handling, 39%. We analyzed as data collection that, for patients with CVC infection is triggered by wetting the dressing and the lack of hygiene in handling, which in fact are closely related, since the aseptic techniques should be respected during all handling with the CVC Since the deployment, handling and dressing. As Borges *et al.,* (2015), there is a high incidence of infections from venous access and that in addition to the general factors, clinical conditions, extremes of age and comorbidities like diabetes, hypertension, obesity and malnutrition, has been investigated factors extrinsic as the colonization of the skin around the catheter insertion site and catheter manipulations

contamination during the exchange of the bandage. Medeiros (2015) and Daugirdas *et al.,* (2013), warn that the catheter exit site should never be submerged in water (pool or tub), so everyone should be protected during the bath. In relation to the patient under hemodialysis knowledge regarding the use of the CVC, 89.84% reported that the usefulness of the implantation of the CVC is only for hemodialysis treatment. On the above, it is seen that the CVC serves only for completion of hemodialysis treatment, which in fact is essential as well as an access way for the treatment, but it has other uses not very known by them, as the administration utility medicine and possible FAV puncture, which varies according to the needs and conditions of the patient. In relation to the reasons that respondent patients did not withdraw the catheter, 67.71% was found to not withdraw patients recognizing that offers risk to life.

Analyzing the data cited above, it is obvious that the respondents perceive that the main risk of the withdrawal of the CVC is the risk to life in general, once it is punctured in caliber and inner vein, its instant withdrawal without qualified professional can trigger serious problems such as sudden loss of large volume of blood, as well as interfere in the treatment process, requiring another puncture. According to Nogueira *et al.,* (2016) is the nursing staff that must guide patients in self-care, so that they can deal with possible complications of their vascular access. About the daily difficulties found by patients who make use of CVC, 67.80% have no difficulties. However, 32.20% who have difficulties, 75.68% reported that the main factor is shame. Maybe the hassle and embarrassment to the use of the CVC depend on the place that was punctured the catheter, in which the more visible (punctured jugular or subclavian) it hurts more the image of the patient, resulting in shame and isolation. As Medeiros *et al.,* (2013), patients under dialysis have degree of assimilation and treatment adherence so diversified that is related to the value they have to them and their life, and how the family supports during the course of life.

Conclusion

Nursing is committed to the needs of human beings, because this has the essence of care, and as a holistic way, it needs an individualized look for its particularities. With technological advances, nursing seeks to improve more and more to serve its public. Individuals who perform hemodialysis are backed by a diversification of technological advances over the years increasingly aim to offer quality and guarantee a good treatment, so the nursing professional need to follow these advances, humanizing and individualizing his conduct. In the present study the subjects under dialysis that composed this sample were by individuals between 48 to 67 years of age, with a higher percentage for those in treatment with more of 3 years, mostly female, married, with children, owners of study up to the first degree, it is characterized in the family as the only case of CKD. Each of them goes to treatment monitored, in their most by a son. The durability of last access presented a 1 to 4 variable months, have utilized more than 1 access, ranging from 1 to 4 devices in greater incidence. All feature a knowledge restricted to self-care. The actions of self-care with CVC are limited in scientific articles. However, in the role of educator it can be noted that guidelines with no watering can be added to other care such as: don't lay down/sleep on the side of the catheter, do not pull or bend the catheter, the catheter area there are bleeding one should find the dialysis Center immediately. Cases of fever and/or pain at the site, the team must be communicated, if the catheter must compress the output location, contact with the dialysis Center and forward to the establishment, preferably with the device, allowing only that the professionals handle the access. With respect to the risk of infection should avoid that the dressing is wet, leave the area susceptible to entry of evil to the individual organisms. During dressing and handling the professional device should use his EPI's, as well as the patient must make use of mask, preventing for airway there is issue of micro-organisms for that location that must be kept clean and dry. In the findings of this research we saw that patients have some knowledge about their catheter care; however, returned only when not wet, for guidance of professionals with regard to increased risk of infection. In the performance of nursing it requires attention, expertise and dedication of different situations in that it is a holistic and individualized view of the patients, valuing their perception about self-care, so in the best way we can address, monitor and detect possible failures in the bad conservation of the central access. For the preparation of this study it saw that this self-perception of venous access care, there is a deficit in the literature. It is important to educate the patient aware to be active in his treatment. In this way, it is necessary more studies that may strengthen this matter in the aspect of the nurse's role as educator, by addressing the patient and his family members, in order to improve each time his quality of life. Discussions and research that address the topic are necessary; as well as the validation Protocol to pass this type of self-care/self-perception regarding the use of the CVC.

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