



RESEARCH ARTICLE

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## RENAL DISEASE IN THE CHILD: CARE PROVIDED BY THE CAREGIVER OF CHILDREN USING A VENOUS CATHETER FOR HEMODIALYSIS

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### ABSTRACT

**Introduction:** Renal insufficiency is the loss of functions performed by the kidneys, and hemodialysis is the most used treatment. **Objective:** To analyze how care is performed with the renal child using the venous catheter for hemodialysis by the caregiver. **Methodology:** This is a descriptive and exploratory study with a quantitative and qualitative approach, conducted with 13 caregivers of renal children enrolled at the Pediatric Renal Replacement Therapy center of a medium and high complexity hospital in Municipality of Belém-Pará. An instrument was used to collect the data, which were described and distributed in tables and analyzed according to the model proposed by Bardin. **Results:** The majority of caregivers were: female, with a mean age of 39 years, mothers of children, low schooling, in stable union, from inside the state, were not currently working and little more than half received treatment out of Home. After data analysis, it was inferred that most caregivers comprise hemodialysis as a means of survival for the child, following the care recommended by the health team in order to maintain vascular access for hemodialysis. However, there is a lack of knowledge about catheter-associated infection. **Conclusion:** Thus, the importance of nurses in providing guidance on the care needed with the catheter is emphasized, so that the caregiver of the child understands what is informed, thus contemplating the patient's safety.

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### INTRODUCTION

Renal insufficiency can be defined as the inability of the kidneys to remove the residues from cell metabolism and perform regulatory functions (SMELTZER et al., 2011).

This pathology can be classified as acute renal failure (ARF) and Chronic (CRF), the first reversible occurring suddenly, while the second is the irreversible and progressive loss of kidney performance (SANTANA et al., 2013). The etiology

and frequency that affect the population vary according to age. In most cases, the occurrence in children before the age of five is related to congenital malformations of the urinary tract, while in five-year-olds and in fifteen-year-old adolescents, acquired renal diseases are more common and Hereditary (PENNAFORT; QUEIROZ, 2011). Santana *et al.* (2013) They affirm that due to the loss of renal function, the patient usually performs the treatment by means of hemodialysis. In this treatment, the blood is obtained through a vascular access through the central venous catheter (CVC), this being a temporary access used until the time of the maturation of the arteriovenous fistula (AVF), permanent access (SILVA; NUNES, 2011). Neves Júnior *et al.* (2013) affirm that the catheters "are related to the higher rates of infection, hospitalization and morbidity and mortality of dialysis patients". Infection is the second cause of death among patients with renal insufficiency, the frequent cause of readmissions of patients undergoing hemodialysis and the most severe complication associated with catheters, occurring in approximately 19% of patients, 7% being Local infections and 12% cases of catheter-associated Bacteremia's (NEVES JÚNIOR *et al.*, 2010).

In the face of the diagnosis of renal insufficiency, the child and his caregiver are confronted with a new perspective of life due to hemodialysis treatment. In this context, the child with CRF in use of CVC has its basic human needs compensated by health professionals and their caregiver in the implementation of care regarding food, health and hygiene, and maintenance of vascular access. In addition, it needs adequate care in general in order to minimize the risk of infection associated with the catheter and the accidental loss of it or its spontaneous expulsion (CRUZ *et al.*, 2012). Thus, this study aimed to analyze how care is performed with the child with renal disease using the venous catheter for hemodialysis by the caregiver.

## MATERIALS AND METHODS

This is a descriptive and exploratory study with a quantitative and qualitative approach, carried out at the Pediatric Renal Replacement Therapy Center (CTRSP) of a medium and high complexity hospital in the city of Belém-Pará, in which it works in Two shifts, in the days of Monday to Saturday, being the Sunday destined for emergency consultations. Caregivers of renal children enrolled in CTRSP, of both sexes, were included in the research, and these were with central venous catheter for hemodialysis for at least six months. The caregivers of renal children with acute renal failure undergoing hemodialysis treatment and who performed the treatment through the arteriovenous fistula were excluded. After applying the inclusion and exclusion criteria, 15 caregivers were invited to participate in the study, of which 2 refused, reducing the sample to 13 participants. The research included a data collection instrument, the interview script. After the approval of the Research Ethics Committee, under the CAAE protocol: 91427418.0.3001.5171, by the opinion N ° 2,968,170, the collections occurred in two stages.

The first one was presented to the participants individually, the research proposal, being invited to participate in the study and, after the consent, the interview was scheduled according to their availabilities. The second stage consisted of conducting the interviews at a place reserved in the library of the institution according to the scheduled time. Data analysis

followed the content analysis model proposed by Bardin (2011), being performed in three phases. In the first phase, the initial ideas were stated, subsequently, the research material was organized. In the second, the analysis and recording of the impressions obtained through the interview data were performed. In the last phase, the discussion of three categories emerged from the analysis of the records units. Data referring to socioeconomic characteristics and questions about catheter maintenance were tabulated and ordered through the Excel program version 15.0 of Microsoft Corporation, through tables. Because it is a study involving human beings, it complied with all the norms recommended by resolution 466/2012 of the CNS.

## RESULTS AND DISCUSSION

Among the 13 participants, 92.3% were females, with a mean age of 39 years, in which 76.9% were mothers of children, 53.8% had low schooling (complete and incomplete elementary school), and 69.2% had a stable union. As for the provenance, it was found that 69.2% were from the interior of the state. Furthermore, it was identified that 46.2% of the participants were not currently working, and 61.5% of the participants received treatment outside the Home (TFD) (table 1).

**Table 1. Socioeconomic characteristics of caregivers, Belém, 2018**

Genre	n = 13	%
Male	1,0	7,7
Female	12,0	92,3
Age group (years)		
25 a 34	5,0	38,5
35 a 49	5,0	38,5
≥ 50	3,0	23,0
Degree of kinship		
Mother	10,0	76,9
Father	1,0	7,7
Grandfather	2,0	15,4
Degree of instruction		
Fundamental Complete	2,0	15,4
Fundamental Incomplete	5,0	38,4
Medium Complete	4,0	30,8
Medium Incomplete	2,0	15,4
Marital status		
Single	2,0	15,4
Married	2,0	15,4
Stable Union	9,0	69,2
Origin		
Capital (Belém)	2,0	15,4
Metropolitan Region	2,0	15,4
Interior of the State	9,0	69,2
Income		
Até 1 Minimum wage	4,0	30,7
> 1 e ≤ 2 Minimum wages	3,0	23,1
doesn't work.	6,0	46,2
Receives TFD		
Yes	8,0	61,5
No	5,0	38,5

Source: Search data, 2018.

Regarding the analysis of the characteristics related to the use of the catheter, it was observed that the time related to hemodialysis by the children ranged from 6 to 56 months, with an average of 25 months. Regarding the time of use of the current catheter, it was found that ranged from 1 to 41 months, with an average of 16 months. When questioned if there was any change of catheter, 61.5% affirmed the realization of at least one, and the infection was the main reason for the Exchange (Table 2).

**Table 2. Characteristics related to catheter use, Belém, 2018**

Time undergoing hemodialysis	n = 13	%
Up to 12 months	6,0	46,1
From 13 to 24 months	3,0	23,1
Over 24 months	4,0	30,8
Current Catheter Use Time		
Up to 12 months	7,0	53,8
From 13 to 24 months	3,0	23,1
Over 24 months	3,0	23,1
There was replacement of the catheter		
Yes	8,0	61,5
No	5,0	38,5
Catheter Exchange Motif	n = 8	%
Infection	1,0	12,5
Absence of catheter flow	2,0	25,0
Exchange of urgency	1,0	12,5
Infection and absence of catheter flow	3,0	37,5
Infection and exteriorization of the catheter	1,0	12,5

Source: Search data, 2018.

The short-stay venous catheters have no mechanism for the prevention of infection by the extraluminal pathway, usually being used between 10 and 14 days. Long-term patients present this mechanism being used frequently when the patient needs to use it over 14 days (BRASIL, 2013). Although short-stay catheters are widely used in emergency situations, they have greater risks than those of long permanence because they favor the occurrence of infection, thrombosis and lower blood flow rate, which decreases the efficiency and Quality of hemodialysis (BORGES; BEDENDO, 2015).

### Category 1: Significance of hemodialysis

The knowledge of the child's pathology is fundamental for the accomplishment of the appropriate care. Thus, it is extremely important to understand the hemodialysis process, its complications and restrictions, and the nurse, therefore, has the role of guiding the caregiver on such knowledge, thus fostering a better quality of life and treatment for the child (SANTOS *et al.*, 2010). Through the caregivers' statements, it was observed that these, in general, attributed the hemodialysis machine to the significance of an equipment responsible for the survival of the renal child. In addition, a caregiver attributed to the treatment an ambivalent sense, recognizing it as responsible for the clinical improvement of the child, but also alters its organic functions in a way detrimental to its health.

*"That it depends on the machine now to live right, if he did not come, he can die, complicates né... His situation, has to depend on the machine, because his kidney has no more function, all two." (C3)*

*"[...] The machine is not like us, it takes everything, sometimes it messes with things that it should not move, should not take, but strip, [...] brings benefits, but then it moves with these things [...] Sometimes, it goes wrong in the machine, gives headache in it, you feel tummy ache [...]." (C7)*

To Smeltzer *et al.* (2011), hemodialysis is essential in patients with CRF when avoiding early death, although it does not fully compensate for the loss of endocrine or metabolic activities of the kidneys. In this context, the caregiver assumes an important role in providing a better quality of life to them, assisting in the promotion of development and growth as close to the expected for their age group (NEVES JÚNIOR *et al.*, 2013).

### Category 2: General care regarding the venous catheter

CRF is a complex process that accompanies the child from diagnosis to treatment, imposing to this restriction due to the disease and its treatment, in which, early, develops its process of self-knowledge, understanding and coexistence with the limitations (ABREU *et al.*, 2014). The necessary care with the venous catheter consists of the following conducts: Do not wet, dirty or withdraw, do not sleep on top, do not handle it (only allowed for professionals), seek health service in cases of dirt, signs of bleeding or Catheter Insertion Site Infection (MIRANDA; OLIVEIRA, 2012; CRUZ *et al.*, 2012). In this perspective, the child, daily, is immersed in the various care related to the catheter, as explained in the following statements:

*"Oh, I'm careful he doesn't knock, so kid doesn't pull, he's joking and I'm on the side so he doesn't run, so he doesn't fall, that's all." (C13)*

*"Oh, he hardly plays because I don't let... I don't leave because he can beat, and can bleed [...] Because if he runs, God forbid, he loses the catheter fast." (C3)*

*"When she goes to school [...] She wears the shirt there, so is protected in parts right [...], she does not do physical education that the school knows of her problem, because she is at risk of hitting, and if beating is already at risk of loss right." (C2)*

*"I bathe in it, use the towel with four folds on top so as not to wet." (C5)*

*"He doesn't sleep on top, because he has the problem too, if he sleeps on top gives trouble, he can stop." (C3)*

The caregivers, in general, reported that they performed the care in accordance with the guidelines passed by the CTRSP health team. Moreover, from the reports, it was inferred that the caregivers demonstrated the fear of losing not only the venous access of the child, but also the life of it. Faced with the feeling of fear and guilt, it was observed that they follow the necessary orientations and care with the catheter aimed at maintaining and preserving venous access and the child's life. Thus, the nursing professional is essential in welcoming the child and the caregiver, taking into account the individuality of each and providing assistance that minimizes any insecurity (CRUZ *et al.*, 2012).

### Category 3: Knowledge about catheter-associated infection

In cases of catheter-associated infection, the patient can usually present fever, chills and signs of toxemia such as purulent and/or bloody secretion, leukocytosis, pain and heat. Fever and chills shortly after catheter manipulation, at the beginning or at the end of the hemodialysis session, suggest bacteremia related to this access. In the presence of such symptoms, blood culture is usually performed, antibiotic administration and catheter removal, and this is again preferably inserted, on the opposite side after 24 to 48 h (NASCIMENTO *et al.*, 2009). When questioned about the knowledge about the signs of infection associated with the catheter, few cited fever and catheter malfunction as signs of warning to catheter-associated infection, while some did not know how to exemplify any sign.

*"Look, usually when you have a problem, it gives you fever [...] And so, it is usually the same fever, which does not pass, then they end up detecting some bacteria some infection [...]."* (C2)

*"So, there was something wrong, when it's okay, you can't see it, an inflammation, a dirty thing, that she let someone else touch it."* (C8)

*"I think some bleeding, both in the part of where it enters, here from the surface part, then inside the same catheter [...]."* (C10)

*"In the catheter, that's why I don't know."* (C6)

Second Araújo and Espírito Santo (2012), The nurse is the professional who has greater contact with the patient during the hemodialysis sessions and what is more prepared to know the patient better and his needs, being more apt to intervene in certain types of complications such as catheter infections Venous. When questioned about who had identified the need to change the catheter, it was observed, by means of the statements, that the health professional is usually the one who identifies some alteration of the CVC, according to the above:

*"About two or three times. One, [...] because they said there was a bacterium in the catheter tube, and then they switched. Once it wasn't working."* (C13)

*"It was always the professionals, when they gave the hemodialysis, she felt cold, very cold, she felt when she was doing the treatment there the nurses pass blood culture right, to know whether it is the catheter or not, then it is counted."* (C6)

*"The nurses, because they deal with him."* (C11)

Through these statements, it was inferred that caregivers have a lack of more thorough knowledge on the subject, in which, despite being guided by the team to attend CTRSP in cases of any alteration of the catheter or state of the child, Present, in their reports, difficulties in identifying, in a certain way, the presence of catheter-associated infection. Through this, it is believed that the information passed on by the team about the signs of infection was absorbed in a deficient manner by the caregivers.

## Conclusion

The realization of this study allowed us to conclude that hemodialysis is understood by the caregiver of the renal child as a treatment responsible for the survival of this, and the care of the catheter, guided by the CTRSP team, is performed in order to preserve venous access, in addition to guaranteeing the continuity of the child's life. Although caregivers follow the orientations passed by the health team, they presented a lack of in-depth knowledge about catheter-associated infection, such as signs of infection, for example. Thus, understanding the knowledge of the caregiver of the renal child allows a new look at the care offered to them, because taking into account the reports of the study participants, the actions of the professionals can minimize several Possible interurrences, since they begin to understand the desires and knowledge of the caregiver, thus directing an effective assistance contemplating the needs of this so that the

orientations provided are understood by the same. Therefore, it is suggested to carry out future studies in this thematic area, thus enriching the literature and providing health professionals with scientific knowledge tools for use in an effective, holistic and humanized care, Prioritizing patient safety.

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