Original Article

Validation of the nursing interventions and activities for patients on hemodialytic therapy

Validação de intervenções e atividades de enfermagem para pacientes em terapia hemodialítica

Validación de intervenciones y actividades de enfermería para pacientes en terapia hemodialítica.

Amália de Fátima Lucena[a]
Cecília Zys Magro[a]
Maria Conceição da Costa Proença[b]
Ananda Ughini Bertoldo Pires[a]
Vítor Monteiro Moraes[a]
Graziella Badin Aliti[a]

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ABSTRACT

Objective: To validate interventions and nursing activities proposed by the Nursing Interventions Classification for patients with acute renal failure or acute chronic renal disease in hemodialysis therapy with the Excess Fluid Volume and Risk for Imbalanced Fluid Volume nursing diagnoses.

Methods: Validation of content with 19 expert nurses from a university hospital. The data collection was made from September to November 2011 through instruments that contained the interventions and nursing activities in study. The data analysis considered the average of scores obtained in the validation process.

Results: The Fluid Management was validated as a priority intervention (mean ≥ 0.8), with eight main activities for the Excess Fluid Volume nursing diagnosis and eight for the Risk for Imbalanced Fluid Volume nursing diagnosis.

Conclusion: The validated intervation of the Fluid Management enables the monitoring of the hydric balance and facilitates the prevention of complications, which are important activities in the nursing care of the patients in hemodialysis therapy.

Keywords: Renal dialysis. Hospital hemodialysis units. Critical care. Nursing care. Nursing diagnosis. Validation studies.

RESUMO

Objetivo: Validar intervenções e atividades de enfermagem propostas pela Nursing Interventions Classification, para pacientes com insuficiência renal aguda ou doença renal crônica agudizada, em terapia hemodialítica com os diagnósticos de enfermagem Volume de Líquidos Excessivo e Risco de Volume de Líquidos Desequilibrado.

Métodos: Validação de conteúdo com 19 enfermeiros peritos de um hospital universitário. A coleta de dados ocorreu de setembro a novembro de 2011, por meio de instrumentos que continham as intervenções e atividades de enfermagem em estudo. A análise considerou a média dos escores obtidos na validação.

Resultados: O Controle Hídrico foi validado como intervenção prioritária (média ≥ 0.8), com oito atividades principais para o diagnóstico Volume de Líquidos Excessivo e oito para o diagnóstico Risco de Volume de Líquidos Desequilibrado.

Conclusão: A intervenção validada de Controle Hídrico possibilita o monitoramento do equilíbrio hídrico e facilita a prevenção de complicações, consideradas importantes atividades do cuidado ao paciente em terapia hemodialítica.

Palavras-chave: Diálise renal. Unidades hospitalares de hemodiálise. Cuidados críticos. Cuidados de enfermagem. Diagnóstico de enfermagem. Estudos de validação.

RESUMEN

Objectivo: Validar intervenciones y actividades de enfermería propuestas por la Nursing Interventions Classification, para pacientes con insuficiencia renal aguda o enfermedad renal crónica agudizada, en terapia hemodialítica con los diagnósticos de enfermería Volumen de Líquidos Excesivo y Riesgo de Desequilibrio de Volumen de Líquidos.

Métodos: Validación de contenido con 19 enfermeros expertos de un hospital universitario. La recolección de datos fue realizada de septiembre a noviembre de 2011 con instrumentos que contenían las intervenciones y actividades de enfermería en estudio. El análisis consideró el promedio de los puntajes obtenidos en la validación.

Resultados: El Manejo de Líquidos fue validado como intervención prioritaria (media ≥0.8), con ocho actividades principales para el diagnóstico Volumen de Líquidos Excesivo y ocho para el diagnóstico Riesgo de Desequilibrio de Volumen de Líquidos.

Conclusión: La intervención validada de Manejo de Líquidos posibilita el monitoreo del balance hídrico y facilita la prevención de complicaciones, consideradas importantes actividades del cuidado al paciente en terapia hemodialítica.

Palabras clave: Diálisis renal. Unidades hospitalarias en hospital. Cuidados críticos. Cuidados de enfermería. Diagnóstico de enfermería. Estudios de validación.

a Universidade Federal do Rio Grande do Sul (UFRGS), Escola de Enfermagem. Porto Alegre, Rio Grande do Sul, Brasil.

b Hospital de Clínicas de Porto Alegre (HCPA), Serviço de Enfermagem Cardiovascular, Nefrologia e Imagem, Unidade de Hemodiálise. Porto Alegre, Rio Grande do Sul, Brasil.

INTRODUCTION

Chronic kidney disease (CKD) is defined by the reduction of glomerular filtration, usually associated with diseases such as diabetes and hypertension. It is a disease that affects approximately 10% of the population[1] and has, in severe cases, the renal replacement therapy (RRT) implemented in three different ways as possible treatment: hemodialysis, peritoneal dialysis and kidney transplantation[2]. According to a survey conducted by the Brazilian Nephrology Society, the expected prevalence rate of dialysis patients has increased since 1994, reaching 499 per million population (pmp) in 2013. In the same year, the southern Brazil presented an estimate of the prevalence of dialysis treatment of 622 pmp, being the highest rate in Brazil [3]. Acute Kidney failure (AKF) is a disease with different etiologies, which causes reduction of glomerular filtration rate, a variable decrease in urine output and a sudden increase in serum creatinine, being strongly related to different cell death processes. It is common in critically ill patients with a mortality rate of up to 80%. Thus, dialysis treatment, in its subtypes hemodialysis, ultrafiltration and peritoneal dialysis, is the main method available as treatment of choice of the AKF[3] in intensive care units (ICU). This nephrological approach of the severe patient admitted to the ICU, called nephrointensivism, involves work in a multidisciplinary team in which the nurse has an active role as well as in the hemodialysis units.

ARF has cardiorespiratory manifestations of dyspnea, edema, arterial hypertension, heart failure, acute pulmonary edema, besides arrhythmias, pericarditis, pleurisy[3], allowing a physical examination rich in signs and symptoms of hypervolemia to the nurse, even in patients with CKD because they are at increased risk of developing ARF[4-5], usually denominated acute CKD. Factors and drugs that impair renal function should be strictly avoided in patients with decreased glomerular filtration rate. Special attention should be given to clinical situations that cause renal hypoperfusion (arterial hypotension, volume depletion), electrolyte imbalance, and to the use of nephrotoxic drugs and radiological contrasts[5].

Based on data collection performed at the clinical judgment stage, the most frequently nursing diagnoses established for dialysis patients are Excess fluid volume (00026) and Risk for imbalanced fluid volume (00025)[6-7], which require adequate nursing interventions.

Nursing interventions classification (NIC) defines nursing interventions as any treatment based on judgment and clinical knowledge that a nurse performs to improve patient outcomes[8]. This classification has a chapter in which associates, in a non-prescriptive way, interventions to nursing diagnoses (NDs) of the NANDA International- (NANDA-I)[9], at three different levels: priority interventions, those that are most likely to resolve a ND; suggested interventions, those that are likely to address a ND; and additional optional, which apply only to some patients with the ND[8].

NIC presents many possibilities, which has led to the development of validation studies that highlight the best practices for certain groups of patients[10-11].

In the case of patients assisted predominantly in hemodialysis units and ICUs, there are important particularities to be considered in the planning and implementation of nursing interventions that should be based on ND.

For the Excess fluid volume and Risk for imbalanced fluid volume found in this group of patients, NIC presents as priorities the interventions of Fluid Management (4120), Hypervolemia Management (4170), Fluid Monitoring (4130) and Electrolyte Monitoring (2020). However, up to the present these interventions have not been validated in the scenario of dialysis patient care[8-9].

Thus, seeking greater evidence to the clinical practice and subsidies that make it possible to structure in a logical and organized way the assistance of these patients, besides contributing to the growth and consolidation of nursing as a scientific discipline, this study proposes to answer the following question: Which NIC interventions and nursing activities will be validated for NDs Excess fluid volume and Risk for imbalanced fluid volume in the context of hemodialysis patients?

Therefore, the aim of this study is to validate interventions and nursing activities proposed by NIC for adult patients with AKF or acute CKD in hemodialytic therapy with NDs Excess fluid volume and Risk for imbalanced fluid volume.

METHOD

Content validation study based on the model proposed by Fehring[12] to validate nursing interventions through expert opinions[10,13].

Research was carried out with nurses from a hemodialysis unit and an adult ICU of a large university hospital in the south of Brazil. In this hospital, the nursing process is computerized and applied in its five stages with NDs described based on the NANDA-I classification[9].

Nine nurses work in the nursing team of the hemodialysis unit while in the adult ICU 60 nurses work distributed in different shifts.

The study population comprised all nurses from these two units. The inclusion criteria for the experts' selection were: to be a nurse for at least two years; to know and to use PE and NANDA-I and NIC nursing classification systems; to have at least one year of experience in hemodialysis and/or nephrointensivism area[11]. Thus, the sample comprised 19 nurses who met the inclusion criteria.

Data were collected over a period of three consecutive months from September to November 2011. The first contact of the researcher with the nurses occurred in the unit itself, with the presentation of research objectives and the invitation to participate as an expert nurse. For data collection, two instruments elaborated by the researcher were used. The deadline for returning the instruments was seven days for the first and between 7 and 15 days for the second, and may be by electronic mail. The first instrument included information that characterized experts and contained a table with nursing interventions described in the IAS as a priority for NDs Excess fluid volume (00026) and Risk for imbalanced fluid volume (00025): Hypervolemia Control (4170), Fluid Management (4120), Fluid Monitoring (4130), Electrolyte Monitoring (2020) and Intravenous (IV) Therapy (4200). The instrument had a six-column table consisting of the ND and nursing interventions described in the NIC as a priority for the same, with a title, definition and a five-point Likert scale used by the expert at the time of his evaluation.

The second instrument included interventions validated in the previous stage with the respective nursing activities for each one, its Likert scale and space for experts to recommend or not the validated interventions, considering the activities presented in the instrument. The instrument had interventions validated in the previous step, with their title and definition and the activity list of each of them with a five-point Likert scale for the expert evaluation.

Data analysis was performed using descriptive statistics, considering the score from 1 to 5, attributed to each intervention and activity. Weighted arithmetic means of the grades attributed by experts were calculated for each intervention and the following values were established: 1 = 0; 2 = 0.25; 3 = 0.50; 4 = 0.75; 5 = 1. Interventions were categorized as priority when they reached weighted arithmetic mean greater or equal to 0.80, complementary when they reached weighted arithmetic mean greater or equal to 0.50 and lower than 0.80; and non-essential when they obtained means less than 0.5, being then discarded[12]. The total score composed of averages of all experts for the validation of nursing interventions was obtained for each intervention, by summing their proportions and calculating the mean of results.

NIC interventions validated as priorities were also submitted to the validation of their activities. In this regard, the same procedure was followed with the assignment of notes and calculation of weighted arithmetic means.

The study, derived from a final paper[14], was approved by the Research Ethics Committee of the Hospital de Clínicas of Porto Alegre under protocol number 11-0465. Nurses who accepted to participate in the study signed the Free and Clarified Consent Term.

RESULTS

The sample consisted of 18 female and one male professionals. From these, 14 were in the ICU and 5 in the hemodialysis unit. From participants allocated to the ICU, 12 (86%) were specialists, one (7%) master and one (7%) doctor. In the hemodialysis unit, two (40%) nurses were specialists and three (60%) were masters. Regarding the time of hemodialysis and/or nephrointensivism, 13 (93%) nurses from the ICU had 1 to 5 years and one (7%) nurse with 11 years or more experience in the area. In the hemodialysis unit, three (60%) nurses had 11 years or more of experience on RRT/hemodialysis, one (20%) had between 6 and 10 years and one (20%) between 1 and 5 years.

Validation results of interventions for dialysis patients with NDs Excess fluid volume and Risk for imbalanced fluid volume considered the weighted arithmetic mean attributed by the expert nurses. Interventions were classified as: priority, those with mean values greater than or equal to 0.80 (frequently used in hemodialysis patients); complementary, with means greater than or equal to 0.50 and less than 0.80 (some probability of being used in hemodialysis patients); non-essential interventions, with means less than 0.50 (discarded).

NIC interventions validated as a priority and complementary to the ND Excess fluid volume in hemodialysis patients are shown in Chart 1.

NIC interventions validated as a priority and complementary to the ND Risk for imbalanced fluid volume in hemodialysis patients are shown in Chart 2.

The validation result pointed to the nursing intervention Fluid Management as priority both for patients with ND Excess fluid volume and for Risk for imbalanced fluid volume. Thus, in the second stage of the study, activities related to this intervention were validated considering each NDs under study.

EXCESS FLUID VOLUME (00026)		
Interventions and numeric code (NIC)	**Average**	**Validation level**
Fluid Management (4120)	0.86	Priority
Hypervolemia Control (4170)	0.70	Complementary
Fluid Monitoring (4130)	0.66	Complementary
Electrolyte Monitoring (2020)	0.53	Complementary

Chart 1 – NIC interventions validated as priority and complementary for ND Excess fluid volume with their respective weighted means.

Source: Research data, 2011.

RISK FOR IMBALANCED FLUID VOLUME (00025)		
Interventions and numeric code (NIC)	**Average**	**Validation level**
Fluid Management (4120)	0.80	Priority
Fluid Monitoring (4130)	0.72	Complementary
Intravenous (IV) Therapy (4200)	0.72	Complementary
Electrolyte Monitoring (2020)	0.50	Complementary

Chart 2 – NIC interventions validated as priority and complementary for the ND Risk imbalanced fluid volume with their respective weighted means

Source: Research data, 2011.

Among the 28 activities related to the Fluid Management intervention, for the ND Excess fluid volume, 8 were considered as priority, 16 as complementary and 4 were discarded by experts (Chart 3).

Among the 28 nursing activities of the Fluid Management intervention, for the ND Risk for imbalanced fluid volume, 8 were considered as priority, 17 as complementary and 3 were discarded by experts (Chart 4).

DISCUSSION

The predominantly available dialysis treatment in the hemodialysis units was gradually extended to ICUs and its indication was extended to critically ill patients. Thus, this therapeutic practice has increasingly required knowledge about interventions and nursing activities for patients subjected to hemodialysis.

Interventions considered as priorities are the most probable for the ND solution. In this sense, the present study validated as priority the intervention of the NIC Fluid Management with eight nursing activities for patients with ND Excess fluid volume and eight activities for those with ND Risk for imbalanced fluid volume. Among these activities, six were validated as priorities for both NDs. The validation of activities for two NDs indicates a similarity in the focus of care necessary for these patients, which can also be confirmed by verifying that Excess fluid volume and Risk for imbalanced fluid volume are located in the same NANDA-I class and domain, i.e., nutrition and hydration, respectively[9]. The hydration class includes NDs that reflect the ingestion and absorption of liquids and electrolytes and therefore require interventions to support homeostatic regulation, as indicated by the Physiological Complex domain of the NIC, where the is situated the Fluid Management[8-9].

Besides these activities, were also validated Maintain accurate intake and output record and Monitor patient's weight change before and after dialysis with ND Excess fluid volume, while Administer blood products (e.g., platelets and fresh frozen plasma) and Encourage significant other to assist patient with feedings were validated for patients with the Risk for imbalanced fluid volume.

Excess fluid volume is defined as "increased isotonic fluid retention" and has among its defining characteristics the weight gain over short period of time, intake exceeds output, alteration in blood pressure, alteration in PAP, in-

ND - EXCESS FLUID VOLUME (00026) Intervention - Fluid Management (4120) Activities	Average	Validation level
Monitor vital signs, as appropriate	0.96	P
Maintain accurate intake and output record	0.91	P
Assess the location and extent of edema, if present	0.89	P
Consult physician if signs and symptoms of fluid volume excess persist or worsen	0.88	P
Distribute the fluid intake over 24 hours, as appropriate	0.87	P
Monitor for indications of fluid overload/retention (e.g., crackles, elevated central venous pressure or pulmonary capillary wedge pressure, edema, neck vein distension, and ascites), as appropriate	0.86	P
Monitor patient's weight change before and after dialysis, if appropriate	0.80	P
Monitor hydration status (e.g., moist mucous membranes, adequacy of pulses, and orthostatic blood pressure), as appropriate	0.80	P
Weigh daily and monitor trends	0.75	C
Instruct patient on nothing by mouth (NPO) status, as appropriate	0.75	C
Encourage significant other to assist patient with feedings, as appropriate	0.75	C
Count or weigh diapers, as appropriate	0.74	C
Monitor hemodynamic status, including central venous pressure (CVP), mean arterial pressure (MAP), pulmonary artery pressure (PAP) and pulmonary capillary wedge pressure (PCWP), if available	0.74	C
Monitor the patient's response to prescribed electrolyte therapy	0.74	C
Arrange availability of blood products for transfusion, if necessary	0.72	C
Administer blood products (e.g., platelets and fresh frozen plasma), as appropriate	0.70	C
Give fluids, as appropriate	0.68	C
Monitor laboratory results relevant to fluid retention (e.g., increased specific gravity, increased BUN, decreased hematocrit and increased urine osmolality levels)	0.67	C
Monitor foods/fluids ingested and calculate daily caloric intake, as appropriate	0.63	C
Offer snacks (e.g. frequent drinks and fresh fruits/fruit juice), as appropriate	0.61	C
Insert urinary catheter, if appropriate	0.61	C
Administer IV therapy, as prescribed	0.53	C
Administer prescribed diuretics, as appropriate	0.53	C
Administer IV fluids at room temperature	0.51	C
Restrict free water intake in the presence of dilutional hyponatremia with serum Na level below 130 mEq per liter	0.49	NE
Monitor nutrition status	0.46	NE
Promote oral intake (e.g., provide a drinking straw, offer fluids between meals, change ice water routinely, make freezer pops using child's favorite juice, cut gelatin into fun squares, use small medicine cups), as appropriate	0.41	NE
Administer prescribed nasogastric replacement based on output, as appropriate	0.30	NE

Chart 3 – Validation of nursing activities of the Fluid Management intervention, for patients with ND Excess fluid volume with their respective weighted means.

Source: Research data, 2011.

P= Priority; C=Complementary and NE= Non-essential

RISK FOR IMBALANCED FLUID VOLUME (00025) Intervention - Fluid Management (4120) Activities	Average	Validation level
Monitor vital signs, as appropriate.*	0.97	P
Assess the location and extent of edema, if present *	0.95	P
Distribute the fluid intake over 24 hours, as appropriate *	0.86	P
Consult physician if signs and symptoms of fluid volume excess persist or worsen*	0.86	P
Monitor for indications of fluid overload/retention (e.g., crackles, elevated central venous pressure or pulmonary capillary wedge pressure, edema, neck vein distension, and ascites), as appropriate *	0.82	P
Monitor hydration status (e.g., moist mucous membranes, adequacy of pulses, and orthostatic blood pressure), as appropriate *	0.80	P
Administer blood products (e.g., platelets and fresh frozen plasma), as appropriate	0.80	P
Encourage significant other to assist patient with feedings, as appropriate	0.80	P
Maintain accurate intake and output record	0.76	C
Monitor hemodynamic status, including central venous pressure (CVP), mean arterial pressure (MAP), pulmonary artery pressure (PAP) and pulmonary capillary wedge pressure (PCWP), if available	0.75	C
Arrange availability of blood products for transfusion, if necessary	0.75	C
Monitor patient's weight change before and after dialysis, if appropriate	0.71	C
Give fluids, as appropriate	0.71	C
Count or weigh diapers, as appropriate	0.68	C
Monitor the patient's response to prescribed electrolyte therapy	0.67	C
Weigh daily and monitor trends	0.66	C
Monitor laboratory results relevant to fluid retention (e.g., increased specific gravity, increased BUN, decreased hematocrit and increased urine osmolality levels)	0.66	C
Instruct patient on nothing by mouth (NPO) status, as appropriate	0.64	C
Monitor foods/fluids ingested and calculate daily caloric intake, as appropriate	0.62	C
Administer IV therapy, as prescribed	0.61	C
Administer IV fluids at room temperature	0.59	C
Offer snacks (e.g. frequent drinks and fresh fruits/fruit juice), as appropriate	0.58	C
Administer prescribed diuretics, as appropriate	0.55	C
Insert urinary catheter, if appropriate	0.53	C
Restrict free water intake in the presence of dilutional hyponatremia with serum Na level below 130 mEq per liter	0.50	C
Monitor nutrition status	0.49	NE
Promote oral intake (e.g., provide a drinking straw, offer fluids between meals, change ice water routinely, make freezer pops using child's favorite juice, cut gelatin into fun squares, use small medicine cups), as appropriate	0.45	NE
Administer prescribed nasogastric replacement based on output, as appropriate	0.35	NE

Chart 4 – Validation of nursing activities of the Fluid Management intervention, for ND Risk for imbalanced fluid volume with their respective weighted means.

Source: Research data, 2011.

*Activities also validated for ND Excess fluid volume.

P=Priority; C=Complementary; NE=Non-essential.

crease CVP, edema, which can progress to anasarca, jugular vein distention, alteration in respiratory pattern, dyspnea, orthopnea, adventitious breath sounds (gasping or crepitations), pulmonary congestion, pleural effusion; hemoglobin and hematocrit decreased, electrolytes imbalance, alteration in urine specific gravity, presence of S3 heart sound, positive hepatojugular reflex, oliguria, azotemia, alteration in mental status, and anxiety[9]. The evaluation of these signs and symptoms of ND Excess fluid volume present in dialysis patients and in other situations of systemic congestion allows the nurse to intervene and measure the expected nursing results (care goals), helping decision making[15].

It is worth noting that in the evaluation of the hemodialysis patient with Excess fluid volume, it is also important that nurses seek their related factors, which may be impairment of the regulatory mechanism, excessive intake of fluids and/or sodium. The excessive intake of fluids is characterized by the greater intake of fluids than the patient can eliminate. In tur, excessive sodium intake, almost always resulting from inadequate diet, may lead to an overload of renal function, leading to fluid retention and hindering its elimination[6-7].

According to the results of this study, the Fluid Management intervention was validated as priority for hemodialysis patients. In addition, three other interventions, Fluid Monitoring, Hypervolemia Control and Electrolyte Monitoring were also validated as complementary by the experts, indicating the care needs of these patients since the interventions considered complementary have a high probability of solving ND.

The Fluid Management intervention is defined as the promotion of fluid balance and prevention of complications resulting from abnormal or undesirable fluid levels[8]. The hemodialysis nurse is responsible for maintaining the patient with fluid balance, which demands actions related to the functioning and complications of dialysis treatment, nutritional therapy, fluid intake, venous access care, importance of physical activity and leisure besides participation in support groups and provision of guidance on aspects regarding the patient's treatment[16].

In the patient's orientation to the need of the fluid balance maintenance and prevention of complications resulting from abnormal or undesirable levels of liquids, it is important to highlight the risks of water overload and cardiovascular complications[16]. Several patients have difficulty on complying with these recommendations because of poor understanding of real needs of sodium and water restrictions or because they lack clarity of what is considered liquid in the diet. Thus, it is important to emphasize that ingestion of coffee, tea, soup, ice cream, coconut water, fruits and vegetables with lots of water, such as watermelon, pineapple, orange, tomato, lettuce, among others should be included in the total volume of consumed fluids[16].

Control of the amount of fluid that can be ingested by hemodialysis patients is aimed at both blood pressure control and interdialytic weight gain, which should not exceed 3 to 5% of their dry weight[16].

Thus, nursing care for hemodialysis patients is directed to assess the water status and identify potential sources of imbalance, perform a nutritional program that ensures adequate intake to the limits of the therapeutic regimen and promote patient safety, with attention to possible complications[17]. The positive fluid balance and consequent hypervolemia in these patients may be responsible for systemic pressure increases, which requires emphasizing fluid intake and strict monitoring of vital signs, weight and other indications of fluid overload and retention, such as edema, crepitations to pulmonary auscultation and jugular vein distension[17].

Besides the rigorous fluid balance and constant monitoring of vital parameters, monitoring of laboratory tests and use of diuretics, activities validated as complementary in this study, appear as important in the literature[17].

The Risk for imbalanced fluid volume, also described in other studies on patients with renal system disorders[6], since its importance in the regulation of osmolality and volume of body fluids, is defined as "vulnerable to a decrease, increase or rapid shift from one to the other of intravascular, interstitial and/or intracellular fluid which may compromise health. This refers to body fluid loss, gain, or both"[9].

It is important to emphasize that signs and symptoms are not considered for the establishment of a risk diagnosis but risk factors, which are apheresis, ascites, trauma, intestinal obstruction, pancreatitis, burns, sepsis and treatment regimen[9]. It is noted that hemodialysis is a type of treatment regimen and, therefore, one of the risk factors for this ND.

For the ND Risk for imbalanced fluid volume, the intervention validated as priority in the present study was also Fluid Management. The three complementary interventions were Fluid Management, Electrolyte Monitoring and Intravenous (IV) Therapy. The first two were also considered complementary to the ND Excess fluid volume while the Intravenous (IV) Therapy was shown as an intervention only for the ND Risk for imbalanced fluid

volume, which shows that sometimes there is a need for hydration of the patient due to the decrease of intravascular fluid.

As previously mentioned, activities considered as priority for hemodialysis patients with ND Risk for imbalanced fluid volume also resemble those validated for the ND Excess fluid volume. However, the activity of Administer blood products (e.g., platelets and fresh frozen plasma) was validated as complementary for the ND Excess fluid volume, which for this ND was considered as priority. This corroborates the idea that there may be a need for hydration in some risk cases of water imbalance.

Moreover, it is reported in the literature that patients undergoing hemodialysis are subject to coagulation disorders regardless of the platelet dysfunction present in uremia[18]. Study results found a significant reduction in platelet aggregation in these patients compared to a healthy group. However, the mechanisms involved in this process still need to be better understood[19].

It is noted that only four of all evaluated activities were discarded by specialists, being: restrict free water intake in the presence of dilutional hyponatremia with serum Na level below 130 mEq per liter; monitor nutrition status, promote oral intake, administer prescribed nasogastric replacement based on output. However, these actions are somehow contemplated in other activities that have been validated as priority or complementary to the hemodialysis patient care, demonstrating the importance of the nurse's clinical judgment in choosing what is most appropriate for the patient under his responsibility.

As limitations of the study, we have validation of interventions and nursing activities performed only in the context of dialysis treatment and with nurses from a single institution. Instruments presented only concepts and scales and did not investigate the reasons for scores attributed by nurses. However, the professionals' expertise on the subject confers credibility to the found results, which have been corroborated by the current literature.

CONCLUSIONS

In this study, the Fluid Management intervention was validated with eight different activities for patients with AKF and with acute CKD in dialysis treatment with NDs Excess fluid volume and Risk for imbalanced fluid volume from the NIC - NANDA -I linkage. This set of interventions and activities allows directing the care to the real needs of these patients, subsidizing the elaboration of an individualized nursing care plan in order to treat or avoid possible complications that may arise.

The nurse plays a fundamental role in the hemodialysis patient care, since he is responsible for the patient's preparation to receive this treatment, the unit and the hemodialysis machine, its installation and maintenance. Associated to this, the nurse is also responsible for guiding and assisting the patient and his family to live with the treatment and with limitations that arise from the disease and its treatment guided by the application of stages of the nursing process, especially the intervention based on ND in the search for the best health results. Thus, it is understood that the results of this study contributed to the deepening of knowledge with possible repercussions on the qualification of care, besides guiding teaching and research in this area of dialysis treatment.

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Corresponding author:
Graziella Badin Aliti
E-mail: grazialiti2@gmail.com

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