ASPECTS OF INTEREST AND PREPARATION OF INTENSIVE THERAPY NURSES TO ACT IN THE CARE OF ACUTE KIDNEY INJURY

ASPECTOS DE INTERESSE E PREPARO DOS ENFERMEIROS DE TERAPIA INTENSIVA SOBRE INJÚRIA RENAL AGUDA

ASPECTOS DE INTERÉS Y PREPARACIÓN DE ENFERMEROS DE CUIDADOS INTENSIVOS SOBRE LESIÓN RENAL AGUDA

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ABSTRACT

The objective of this study was to evaluate the aspects of interest and preparation of intensive care nurses to act in the care of patients with acute kidney injury. This cross-sectional, evaluative study was carried out in seven public hospitals, with 136 nurses. The interest and preparation to provide care for patients with acute kidney injury in intensive care were evaluated. Inferential analysis was performed using the chi-square test. There was a high interest in learning about the subject (n = 125) and about the management of the machines (n = 119) and in participating in theoretical or practical courses (n = 126), because they felt unprepared (n = 88) and mentioned insecurity (n = 111) to provide care for patients with acute kidney injury. There was no specific training when assigned to the hemodialysis sector (n = 136), and only five nurses reported that the institution offers training. The interest in learning about the theme is high. However, the preparation is still incipient and indicates the need for more investments in training by the institution directed to intensive care nurses who provide care to patients with acute kidney injury.
Keywords: Acute Kidney Injury; Hemodialysis Units, Hospital; Nursing; Intensive Care Units; Education, Continuing.

RESUMO

Objetivou-se avaliar os aspectos de interesse e preparo de enfermeiros de terapia intensiva para atuar no cuidado a pacientes com injúria renal aguda. Trata-se de estudo transversal, avaliativo, realizado em sete hospitais públicos, com 136 enfermeiros, sendo avaliados o interesse e o preparo sobre o cuidado a pacientes com injúria renal aguda em terapia intensiva. A análise inferencial foi realizada por meio do teste qui-quadrado. Evidenciou-se elevado interesse em aprender sobre a temática (n=125), sobre a gestão das máquinas (n=119) e em participar de curso teórico ou prático (n=126), visto que se sentem despreparados (n=88) e mencionam insegurança (n=111) em cuidar dos pacientes com injúria renal aguda. Não houve treinamento na admissão específico para a hemodiálise (n=136) e somente cinco enfermeiros relataram treinamento oferecido pela instituição. O interesse em aprender sobre a temática é elevado, no entanto, o preparo ainda é incipiente, o que demonstra a necessidade de mais investimentos em ações de capacitação ofertadas pela instituição voltadas para o enfermeiro intensivista que presta cuidado ao paciente com injúria renal aguda.
Palavras-chave: Lesão Renal Aguda; Unidades Hospitalares de Hemodiálise; Enfermagem; Unidades de Terapia Intensiva; Educação Continuada.

RESUMEN

Esta investigación busca evaluar los aspectos de interés y preparación de enfermeros de cuidados intensivos para atender a pacientes con lesión renal aguda. Se trata de un estudio transversal evaluativo realizado en siete hospitales públicos con 136 enfermeros. Se evaluaron el interés y la preparación en la atención de pacientes con lesión renal aguda en cuidados intensivos. El análisis inferencial se realizó por medio de la prueba chi-cuadrado. Se observo un elevado interés en aprender sobre el tema (n=125), sobre la gestión de los equipamientos (n=119) y en participar del curso teórico o práctico (n=126); se sienten despreparados (n=88) y mencionan inseguridad (n=111) en atender pacientes con lesión renal aguda. No hubo capacitación en la admisión específica para hemodiálisis (n=136) y sólo cinco enfermeros informaron haber recibido capacitación ofrecida por el hospital. El interés en aprender sobre el tema es grande pero hay muy poca preparación, lo cual demuestra que es urgente que los hospitales inviertan en acciones de capacitación para los enfermeros de pacientes con lesión renal aguda en cuidados intensivos.
Palabras clave: Lesión Renal Aguda; Unidades de Hemodiálisis en Hospital; Enfermería; Unidades de Cuidados Intensivos; Educación Continua.

INTRODUCTION

Acute Kidney Injury (AKI) is common in the hospital setting and its incidence varies according to the patient's clinical condition, being more noticeable in intensive care units (ICUs) where almost 60% of the patients develop AKI.[1] The incidence rate is 21,6% in adults, and mortality rates are 23,9% and 13,8% in adults and children, respectively.[2]

Death of ICU patients is directly related to the progression of AKI and, consequently, physiological changes such as those in blood pressure, hydration level, urinary elimination pattern and serum levels of urea and creatinine.[3]

Dialytic treatment is initiated with the aim of reversing the abovementioned changes, in order to reduce nitrogenous compounds and improve the clinical conditions of patients. However, hemodialysis exposes patients to infectious, nutritional, cardiovascular, respiratory and digestive complications, not to mention those resulting from the dialysis therapy itself.[4] It is the duty of nurses to act preventively to minimize such adversities.

Nurses, as members of the health team, act in the management of care, maintenance of favorable hemodynamic conditions to guarantee the effectiveness of the hemodialysis procedure, and vigilance in intercurrences. Therefore, qualification and knowledge of nursing professionals regarding this form of treatment is important.

The actions of nurses in the different dialytic therapies are not limited to the handling of technological devices or to the treatment of intercurrences, but they also permeate the management of the nursing team in proactive approach to prevent and control complications.[5]

Nursing care for AKI patients is challenging in clinical practice because it requires clinical reasoning and judgment in decision making. In order for nurses to carry out these practices with quality and safety, interest on the part of the professionals and encouragement of the institution to gain knowledge are necessary. It is verified that the incessant search for learning is based on internal and external motivations and the commitment to acquire new essential competences in the caring process.[6]

However, some factors contribute to the search for interest, such as the real situation experienced by nurses and their ability to manage and filter what is relevant to be learned. In this sense, nurses seek to improve practices, linking them to current requirements in the area of Nephrology, a field previously directed to specific units such as hemodialysis clinics, because patients with renal injury requiring dialysis treatment have become increasingly present in different sectors, with emphasis on intensive care units (ICU) where nurses are required to work in this clientele.[7]

In this sense, the objective was to evaluate aspects of interest and preparation of intensive care nurses to act in the care of patients with acute kidney injury.

MATERIAL AND METHOD

A cross-sectional, evaluative study was conducted in seven public hospitals in Ceará, Brazil that have hemodialysis as a therapeutic modality in the ICU. Five hospitals are located in the capital and two in the countryside of the state. Data collection occurred between April and October 2016.

The formula for finite population was used for sample size calculation, considering a total population of 210 nurses distributed in seven hospitals, 95% confidence coefficient, and proportion of outcome of 50%. Thus, a total of 136 nurses were included in the sample and allocated proportionally to the total number of nurses in each hospital, by the method of simple random sampling without replacement.

As inclusion criterion, the nurses should have at least one year of experience in an adult ICU. The exclusion criterion was to be away for reasons of any nature during the period of data collection. In the recruitment of nurses for sample composition, 16 professionals refused to participate in the survey. After the start of the collection, there was no loss of participants.

Three models of action during dialysis therapy are possible in the institution. In the first, the intensive care nurse takes on the responsibility for the therapy; in the second, the nephrologist and the dialysis team are the ones responsible for the therapy; and finally, in the collaborative model, the nursing team, the nephrologist physician, the intensivist physician and nursing technicians are all involved, characterizing an increased share of scientific knowledge that results in better quality care.

The data collection instrument was a questionnaire created with questions related to the interest and preparation of nurses working in intensive care units regarding AKI. The first questions had as objective to identify the sociodemographic and professional profile of ICU nurses. The questionnaire had questions on age, sex, undergraduate institution, graduation time, specialization, time working in the ICU, and training in Nephrology. The following questions relate to the interest in learning about the theme and the training of professionals to provide care for patients with this disease.

The instrument was composed of 10 questions that addressed the interest and the preparation of the intensive care nurses on the subject studied. Each question was answered in a four-point Likert scale ranging from "fully agree" to "fully disagree". The instrument was constructed from a focal group with 10 nephrologist nurses and, afterwards, a pre-test was made with six intensive care nurses. Semantic adjustments were made with the aim to turn the instrument clearer and more comprehensible.

The collection instrument was applied on a scheduled time to avoid interfering with the activities of the nurses. A schedule of visits was built for each hospital, and a member of the team of researchers of the project went to the hospitals on a morn-

ing, afternoon and evening shift to meet with the nurses and wait until they were available to respond to the questionnaire.

The statistical treatment of the data was made in the IBM-Statistical Package for Social Science (SPSS), version 21.0. For inferential analysis, the homogeneity of the data (chi-square) was initially tested in order to evaluate the proportional distribution among the hospitals. The level of significance used for homogeneity was p ≥ 0,05. Interest and preparation were calculated as percentages.

Data on the sociodemographic and professional profile of the participating nurses were presented in a descriptive way, while interest and preparation of the nurses was shown through tables, divided according to the seven hospitals in which the collection was performed. Some data such as who was the professional responsible for dialysis therapy and the support offered during intercurrences were presented in a descriptive way.

The research project was approved by the *Comitê de Ética e Pesquisa* of the *Universidade Federal do Ceará-UFC* under nº 1,519,319 and of all other partner centers in compliance with national and international precepts and research norms.

RESULTS

Of the 136 nurses, 106 were female, the age ranged from 23 to 68 years, and the time of training ranged from one to 35 years, with predominance of a maximum of three years (n = 53). Most professionals were outsourced through cooperatives (n = 72), and only 26 were had been effectively hired through public tender.

As for the maximum titration, 40 had graduation, 85 had specialization, seven had master degree, and four had PhD. Six nurses had participated in training or updating in the area of Nephrology and none reported having received training offered by the hospital.

Regarding the evaluation of nurses on AKI, there was a high interest in studying the subject (n = 125), as well as the desire to receive theoretical or practical training (n = 126). The confirmation of the need for teamwork and for improvement of communication between nephrologist and intensive care nurses was cited as a positive point by 119 nurses. Regarding the use of light-hard technologies such as manuals, serial albums or applications as tools to contribute to the knowledge and to research, some (n = 120) mentioned having turned to Google as a reference tool and reported that the existence of any technology could aid in guiding a better provision of care (Table 1).

Table 2 presents the results of how nurses working in intensive care units see themselves before the need of providing care for the acute kidney patients, and how the hospital support these professionals.

The collaborative model is in force in the hospitals of the study because the hemodialysis service is outsourced and the outsourced company is responsible for providing the dialysis therapy service. Only 46 nurses reported having support from higher education professionals to assist in the maintenance of dialysis; however, 90 reported receiving support only from the nursing technician at the outsourced hemodialysis clinic. Homogeneity among hospitals (p = 0,05) regarding the presence of human capital was also observed.

Table 1 - Evaluation of the interest of nurses in intensive care units on the theme of acute kidney injury (n = 136). Ceará, Brazil, 2016

	H1 (n=13)	H2 (n=7)	H3 (n=11)	H4 (n=46)	H5 (n=10)	H6 (n=10)	H7 (n=39)	Total (n=136)	P*
Studying about AKI	11	7	10	43	10	8	36	125	0.579
Learning about HD machines	12	6	10	40	10	9	32	119	0.908
Participating in courses on AKI and HD	12	7	10	44	10	9	34	126	0.699
Improving communication between intensive care nurses and nephrologists	12	7	8	38	10	9	35	119	0.522
Developing Technologies on HD-related intercurrences	12	7	10	35	10	9	37	120	0.144

*Chi-square test (homogeneity test); *H - Hospitals where the collection was performed; *AKI - acute Kidney Injury; *HD - Hemodialysis.

Table 2 - Preparation of nurses in intensive care units on acute kidney injury (n = 136). Ceará, Brazil, 2016

	H1 (n=13)	H2 (n=7)	H3 (n=11)	H4 (n=46)	H5 (n=10)	H6 (n=10)	H7 (n=39)	Total (n=136)	P*
Acting with AKI patients	4	1	4	21	3	4	11	48	0.618
Safety to work with dialysis therapy	4	0	1	11	1	2	6	25	0.623
Training on hemodialysis at admission	0	0	0	0	0	0	0	0	–
Support to assist in the maintenance of hemodialysis	6	6	3	14	3	5	9	46	**0.005**
Training and/or qualification in the workplace	1	0	0	2	0	0	2	5	0.968

*Chi-square test (homogeneity test); *H - Hospitals where the collection was performed; * AKI - Acute Kidney Injury; *HD - Hemodialysis.

Also, when the nurses were questioned about the professional responsible for dialysis therapy, 91 believed that this function was the duty of the assistance nurse of the intensive care unit; 85 believed to be the duty of the intensivist physician; 35 of the nephrologist nurse; 41 of the nephrologist physician; and 49 of the nursing technician of the hemodialysis service.

DISCUSSION

The sociodemographic profile identified in this research converged with the results presented in an integrative review on the profile and professional training of nurses working in ICU in the different regions of Brazil[8] and, more specifically, with the socio-professional characteristics of a survey on the nursing scenario in Nephrology in another capital of the Northeast region.[9]

It is noteworthy that ICU nurses have a generalist training and in the scope of action and this explains the difficulty to identify clinical manifestations of cases of acute kidney injury in ICU patients, according to available evidence.[10]

It is urgent to consider that the curricular matrices of Nursing courses need to be more involved with relevant epidemiological issues and incidents on the national scenario, working with health-illness-care needs, technological aspects, and the complexity of care to renal patients in the various clinical care settings, including ICU.[8]

In Brazil, it is common that nurses working in critical care units accompany the hemodialysis of hospitalized patients. Since 2002, however, there is a regulation issued by the Ministry of Health that requires the need for specialization in Nephrology in the case of professionals of this category who work in services that offer dialysis treatments.[11] It is, therefore, wise to consider that in ICUs where dialysis treatments are provided in the bedside, the assistance of nephrologist nurses is indispensable.

Hemodialytic treatment and related intercurrences are considered to be highly complex where know-how alone is not enough. Knowledge and know-how, as well as the handling of high technology devices used and knowledge about the renal compensatory pathophysiological mechanisms are essential to reduce damage and adverse events to the patient.[12]

The study found that the critical environment and the management of technical equipment such as ventilators, infusion pumps, monitors, and dialysis machines turn intensive health care into an increasingly complex setting[13], cooperating to the lack of time for learning, so necessary for health professionals.

In line with the present study, another research found that the dialysis machine was described as having a negative impact in the nursing care, and it was reported that nurses avoided interventions to reduce the risk of disconnecting devices, generating feelings of irritation and frustration when working with technology they do not master.[13]

Similar results were obtained in another study, in which 45% of the professionals who worked with renal replacement therapy in critically ill patients stated that they had never participated in training to handle this technology and acquired knowledge in the course of the practice. The problems frequently encountered were: lack of adequate training (31%) and need for more collaboration between operators during the session (24%).[14]

To minimize this situation, studies suggest that continuing education in service should be a strategy used to minimize possible intercurrences during management of the therapy by the whole multiprofessional team. Thus, it is observed that the training of newcomers should be carried out by experienced nurses who take on mentoring roles, such as nephrologists, in addition to supervising and evaluating the adequacy of this training.

It is also advisable to provide training for those who are working, based on clinical guidelines, data interpretation, and troubleshooting devices. These guidelines should always be made available for use as an alternative to training courses.[15]

It should be emphasized that, coupled with the fact that nurses express an interest in learning more about the subject, it is necessary that the heads of health institutions feel committed to offer dynamic, current and scientific resources to promote learning in the theme.[16]

Regarding the management and responsibility for the dialysis therapy in the institution, 66,9% of the participants believed that the responsibility was of the assistance nurse of the intensive care unit and 62,5% thought to be the responsibility of intensivist physicians. On the other hand, another study showed that 23% of the professionals considered that the responsibility of the dialysis team was 39% of the intensive care nurse and 38% of the shared organization.[14]

A dispersed distribution was observed in the identification of the professionals who would be the responsible for the dialysis therapy, denoting that the definition of roles and responsibilities should be considered by administrative and clinical managers in order to guarantee better therapeutic benefits. It is also associated with the fact that nurses, although specialists in Nephrology, cannot clearly visualize their own duties and competencies.[17]

Thus, nephrologist nurses should also be deemed as having a relevant role in this process of improvement and guarantee of successful hemodialysis therapy, through the discussion with the intensivist physician about the best care processes, with clearly demarcated policies and procedures. Nephrologists need to dedicate time to support the infrastructure, engage with ICU leadership, develop and oversee quality assessments, and create an appropriate culture to maximize the success of dialysis therapy.[18]

The promotion of dissemination and discussion of the interest and practices that nurses of intensive care unit have regarding kidney injury is considered relevant, as it will serve as an

indicator of the need for investments in educational programs focused on the subject, as well as for strengthening the nursing actions in the assistance to this clientele.

We highlight as a limitation the impossibility to generalize the data because they are part of a local reality and of hospitals of the public network.

CONCLUSION

It became clear that nurses of the intensive care units studied showed an interest in learning about acute kidney injury and showed that although the preparation to act in that area was self-described as fragile, they were available for professional improvement.

The identification of interest as well the preparation of professionals will contribute to the creation of institutional policies that prioritize training strategies in the clinical practice of intensive care units. Courses and training in hospitals directed to these nurses are fundamental because they are professionals who directly provide care for kidney patients in dialysis therapy.

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