


Nursing care for critically ill patients with acute kidney injury: An integrative review

 <https://doi.org/10.56238/sevned2024.001-041>

Lais Kaori Sato Murrugarra¹, Ana Luisa Serrano Lima², Giovana Munhoz Dias³, Giovana Tofoli Sampaio⁴, Carolina Amadeu Fecchio⁵, Sara Eleotério Costa⁶, Rafael Brendo Novais⁷, Ana Clara Luckner⁸, Lorraine de Souza Santos⁹, Heitor Hortensi Sesnik¹⁰, Gabriel Vale dos Santos¹¹ and Roberta Tognollo Borotta Uema¹²

ABSTRACT

Introduction: In the Intensive Care Unit, it is observed that Acute Kidney Injury is a very common comorbidity that culminates in the dysfunction of one of the most important organs. The main characteristics of this pathology are low diuresis output and increased serum creatinine. **Objective:** To identify in the literature what nursing care is provided for adult patients who develop acute kidney injury during hospitalization in the intensive care unit. **Method:** Integrative literature review, guided by the following research question formulated in accordance with the PICO strategy: What nursing care is provided to adult patients with acute kidney injury admitted to an intensive care unit? The search was carried out between April and May 2023 in the Virtual Health Library and PUBMED. **Results:** 515 articles were found and of these 461 were excluded because they did not correspond to the theme. 12 were not available in full, 30 did not answer the research question, totaling 8 articles for analysis. It was identified that nursing care for patients with acute kidney injury in the ICU goes beyond the kidney problem, focusing on the patient's global well-being. No specific care for the disease was observed, only issues aimed at the critical patient as a whole. **Conclusion:** There is a high incidence of patients who develop acute kidney injury when admitted to the intensive care unit, however, even though the disease is reversible, it is observed that nurses have shallow knowledge on the subject, as it was not possible to find care prescribed directly for this purpose.

Keywords: Acute Kidney Injury, Nursing care, Intensive care unit.

¹ Nurse. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: kaori.laiss@gmail.com

² Nurse. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: analuisa095@gmail.com

³ Nurse. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: giovanamunhoz15@gmail.com

⁴ Nurse. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: giovanatofoli@gmail.com

⁵ Nurse. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: carolinaamadeu@hotmail.com

⁶ Nurse. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: sararighetto2@gmail.com

⁷ Undergraduate Nursing Student. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: rbnovais@outlook.com

⁸ Undergraduate student of Nursing. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: analuckner@gmail.com

⁹ Undergraduate student of Nursing. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: lorraine.souza.1806@gmail.com

¹⁰ Undergraduate Nursing Student. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: sesnikh@gmail.com

¹¹ Undergraduate Nursing Student. State University of Maringá (UEM). Maringá, PR, Brazil.
E-mail: gvale1599@gmail.com

¹² Post-Doctorate in Nursing. Collaborating Professor of the Nursing Department of UEM. Maringá, PR, Brazil.
E-mail: rtbuema2@uem.br



INTRODUCTION

Critically ill patients who require intensive care to preserve their vital organs are directed to the sector that has this objective, that is, to the Intensive Care Unit (ICU) (Huang *et. al*, 2020). Within an ICU there is a very frequent comorbidity that culminates in the dysfunction of one of the most important organs, called Acute Kidney Injury (AKI). The disease causes the kidneys to abruptly lose their glomerular filtration capacity, which may or may not be associated with decreased diuresis, causing hydroelectrolyte and acid-base imbalance in the patient (Guedes *et.al*, 2017).

The main characteristics of AKI are low diuresis output and increased serum creatinine (Wang *et. al*, 2024). This comorbidity may or may not cause the patient to become symptomatic, and the main symptoms include: nausea, vomiting, encephalopathy and may even progress to death. The pathology varies according to the degree of seriousness of the comorbidity, however, the association of the patient's clinical status and laboratory tests to analyze creatinine and urea levels is of great importance and thus be able to diagnose AKI in the patient (Pacheco *et. a.*, 2022).

According to some studies, the incidence of the disease within the ICU can vary from 29% to 76.5% and some factors can influence such values, such as invasive procedures and other comorbidities concomitant with the pathology (Guedes *et.al*, 2017). However, even though it is quite frequent within the sector, studies show that knowledge on the subject among ICU nursing professionals is low, and the proof of this are the studies that show a rate that only 44.96% of professionals in this critical sector have knowledge about the disease (Melo *et. al*. 2020).

Considering the scarcity of studies related to the subject, especially in the field of nursing, it is of paramount importance that nurses who work in critical sectors and live daily with patients who develop AKI understand the severity of the disease and their respective nursing care. In this context, the following question arises: what are the main nursing care that should be applied to patients who develop AKI?

OBJECTIVE

To identify in the literature the nursing care for adult patients who develop acute kidney injury during hospitalization in the intensive care unit.

METHODOLOGY

It is an integrative literature review whose purpose is to synthesize results obtained in research on a theme or issue, in a systematic, orderly, and comprehensive manner. It is called integrative because it provides broader information about a subject/problem, thus constituting a body of knowledge. In this way, the reviewer/researcher can develop an integrative review with different



purposes, which can be directed to the definition of concepts, revision of theories or methodological analysis of the studies included in a particular topic (Ercole, Melo, Alcoforado; 2014).

The variety in the composition of the integrative review sample in conjunction with the multiplicity of purposes of this method provides as a result a complete picture of complex concepts, theories or problems related to health care, relevant to nursing (Ercole, Melo, Alcoforado; 2014).

The approach had six stages, namely: identification of the theme and selection of the hypothesis or research question; criteria for inclusion and exclusion of studies/sampling or literature searches; definition of the information to be extracted from the selected studies/categorization of the studies; evaluation of included studies; interpretation of results; and presentation of the review/synthesis of knowledge (Ercole, Melo, Alcoforado; 2014).

Using the PICo strategy (P: population, I: phenomenon of interest, and Co: context) (Rathbone; et al 2017) to formulate the guiding question, the population was considered to be critically ill adult patients, as a phenomenon of interest in nursing care, and as a context hospitalized in an intensive care unit. In view of the above, the following question arose: "What nursing care is provided to adult patients with acute kidney injury admitted to the intensive care unit?"

The search was carried out in the databases provided in the Virtual Health Library (VHL) and in PUBMED. Data collection took place between April and May 2023 with the following descriptors: Acute Kidney Injury, Nursing Care and Intensive Care Unit, in accordance with the Health Sciences Descriptors (DeCS) and for the foreign database, the following keywords were used: *Acute Kidney Injury, Nursing Care and Intensive Care Unit*, and Spanish: *Acute Renal Injury, Nursing Care and Intensive Care Unit*, taken from *the Medical Subject Headings (MeSH)*, organized by the Boolean operator AND in all the aforementioned databases.

As inclusion criteria, full and fully available articles covering the research question were established, in Portuguese, English and Spanish, with no limit of year of publication, considering the relevance of the theme. Publications that generally did not meet the proposed theme, duplicate articles, reviews, theses, and dissertations and that were not available in full were excluded.

At first, the articles found were evaluated for title and abstract. Once they addressed the proposed theme, they were read in full and evaluated according to an instrument formulated by the researcher herself, which included: database in which the article was found, title, country and year of publication, study design and objective, and main results found. As this is a research carried out with previously published sources of information, the study does not require approval by the research ethics committee.



RESULTS AND DISCUSSION

After the search, 515 articles were found. Of these, 461 were excluded because they did not correspond to the theme and 12 because they were not available for reading in full. Of the remaining 43 articles, 30 were excluded because they did not answer the research question, ending with 8 articles for the final sample. Of those who were included, most were of foreign origin and with a predominance of qualitative studies.

Regarding the main care, it was identified that the care provided to patients who develop AKI in the ICU is more related to the overall well-being of the highly complex patient than specifically to the renal problem (Melo, *et al*; 2021).

The control of fluid and acid-base balance, care with vascular access for renal replacement therapy when necessary, monitoring of diuresis output, nutritional control and capillary glycemia are a constant within the intensive environment, not becoming something specific for patients with AKI (Li, *et al*; 2022).

The process of transition from hospital discharge to home was identified only as something related to nursing and more focused on the renal system, in order to ensure an adequate quality of life and subsequent survival, especially when AKI becomes a chronic problem and the patient becomes dependent on renal replacement therapy throughout life (Huang, *et al*; 2020).

It can be inferred that the discharge process is complex and that it should be initiated as soon as the admission takes place and that after leaving the hospital environment, several interventions are necessary, mainly related to the points of reference and counter-reference within the health care networks, in order to ensure adequate care for patients with AKI, as well as an adequate reintegration into the family context and society as a whole (Pacheco, *et al*; 2022)..

CONCLUSION

It was observed in the articles found that AKI has a high incidence in patients admitted to the ICU and is one of the main causes of mortality in this population, however, despite being something even reversible, much of the care involved is related to high complexity in general and not specific to kidney disease. It is assumed that this problem may have come to light due to the fact that many professionals do not have adequate knowledge of the pathology, its risk factors and care strategies.

In addition, studies also indicate that renal replacement therapy (RRT) coupled with a transitional care program with elaborate care coordination, a continuous approach carried out with a multidisciplinary team by physicians, nurses and RRT coordinators, leads to weaning from renal replacement therapy and, consequently, a decrease in the patient's hospitalization time and a good return to society.



The nursing team is the one that is present from the moment of admission until the transition of discharge from the ICU and remains by the patient's side 24 hours a day. In view of this, it is necessary that training about AKI and the importance of maintaining fluid balance, catheter care, infection prevention while the patient is hospitalized in intensive care and later reinserted into the home environment occurs in the best possible way, seeking not only to reduce mortality, but also to ensure quality of life.



REFERENCES

1. Ercole FF, Melo LS, Alcoforado CLGC. Revisão integrativa versus sistemática. *Rer Min Enferm.* 2014;18(1):10.
2. Kloda LA, Boruff JT, Cavalcante AS. A comparison of patient, intervention, comparison, outcome (PICO) to a new, alternative clinical question framework for search skills, search results, and self-efficacy: a randomized controlled trial. *J Med Libr Assoc [Internet]*. Disponível em: <https://doi.org/10.5195/jmla.2020.739>. acesso em: 12 de fev de 2024.
3. Li, Xu et al. Associação dos níveis basais de glicose no sangue com mortalidade em 30 dias em pacientes com lesão renal aguda: um estudo de coorte retrospectivo. *Annals of Palliative Medicine*, v. 11, n. 10, pág. 3193-3202, 2022.
4. Zyga, Sofia et al. Insuficiência renal aguda: métodos de tratamento na unidade de terapia intensiva. *Journal of Renal Care*, v. 35, n. 2, pág. 60-66, 2009.
5. Huang, C.-Y. et al.. Modelos de predição clínica para lesão renal aguda na unidade de terapia intensiva: uma revisão sistemática. *Revista Brasileira de Terapia Intensiva*, v. 32, n. 1, p. 123–132, jan. 2020. Disponível em: <https://www.scielo.br/j/rbti/a/8z8SgFbHqvXyh7sb8x5rRnb/?lang=pt>. Acesso em 12 de fev de 2024.
6. Guedes, Jailza Da Rocha et al. Incidência e fatores predisponentes de insuficiência renal aguda em unidade de terapia intensiva. *Cogitare Enfermagem*, v. 22, n. 2, 2017. Disponível em: https://scholar.google.com.br/scholar?hl=pt-BR&as_sdt=0%2C5&q=GUEDES%2C+Jailza+Da+Rocha+et+al.+Incid%3%AAncia+e+fatores+predisponentes+de+insufici%3%AAncia+renal+aguda+em+unidade+de+terapia+intensiva.+Cogitare+Enfermagem%2C+v.+22%2C+n.+2%2C+2017.&btnG=. Acesso em: 12 de fev de 2024.
7. Wang M, Liu G, Ni Z, Yang Q, Li X, Bi Z. Acute kidney injury comorbidity analysis based on international classification of diseases-10 codes. *BMC Med Inform Decis Mak.* Disponível em: <https://bmcmmedinformdecismak.biomedcentral.com/articles/10.1186/s12911-024-02435-0>. Acesso em: 03 de fev de 2024.
8. Pacheco, Livio Pereira et al. Abordagem atualizada da Lesão Renal Aguda (LRA): uma revisão narrativa. *Revista Eletrônica Acervo Médico*, v. 7, p. e10162-e10162, 2022. Disponível em: <https://acervomais.com.br/index.php/medico/article/view/10162>. Acesso em: 05 de fev de 2024.
9. Melo GAA, Silva RA, Galindo Neto NM, Lima MA, Machado MFAS, Caetano JÁ. Conhecimento e prática assistencial de enfermeiros de unidades de terapia intensiva sobre injúria renal aguda. *Texto & Contexto-Enfermagem*, v. 29, 2021. Disponível em: <https://doi.org/10.1590/1980-265X-TCE-2019-0122>. Acesso em: 08 de fev de 2024.
10. Rathbone J, et al. Expeditin citation screening using PICO-based title-only screening for identifying studies in scoping searches and rapid reviews. *Systematic reviews*, v.6, n. 233, 2017. Disponível em: Disponível em: <https://systematicreviewsjournal.biomedcentral.com/articles/10.1186/s13643-017-0629-x>. Acesso em: 25 fev. 2024.