



CLINICAL OUTCOME OF PATIENTS IN DIALYSIS URGENCY: AN INTEGRATIVE LITERATURE REVIEW

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ABSTRACT

Objective: To investigate the clinical outcome of patients in dialysis urgency who have undergone renal replacement therapy, through an integrative literature review. **Method:** Integrative literature review of studies published from January 2010 to July 2020, in full, in English and Portuguese, in the databases: Latin American and Caribbean Literature in Health Science, Medical Literature Analysis and Retrieval System Online, Nursing and PUBMED database. The keywords and descriptors were used: "hemodialysis", "emergency", "renal dialysis", "mortality", "clinical outcome" and "dialysis urgency". The texts were pre-selected from reading the titles and abstracts, verifying their adherence to the theme, and 344 articles were found. Next, the results and study considerations were read. Of the 334 pre-selected articles, only 13 were included. **Results:** There is recurrence of dialysis urgency, with death being the main clinical outcome. **Conclusion:** Studies on the clinical outcomes of patients in dialysis urgency are still few compared to the dimension that kidney disease has in the world population. Knowing these outcomes will provide support for further studies on the survival of these patients and for more effective health policies.

Keywords: Renal dialysis. Emergencies. Mortality. Dialytic urgency. Clinical outcome.

INTRODUCTION

The balance of the internal chemistry of the human body occurs mostly due to the work of the kidneys, and any change in the functions of these organs can cause an imbalance in the body, making it essential to establish renal replacement therapy (RRT). This decrease in renal function is called renal failure (RF), which can be classified as acute renal failure (ARF) or chronic renal failure (CRF), and it is usually developed from the inadequate management of chronic diseases, such as Diabetes Mellitus (DM) and Systemic Arterial Hypertension (SAH)⁽¹⁻³⁾.

RF is an insidious condition, and when the signs and symptoms become apparent, the kidneys reduce in functionality, 10 to 15% of their total capacity, confirming the importance of

their early diagnosis⁽⁴⁾.

When this early diagnosis of RF is not performed and renal function is insufficient, to the point of generating imminent risk for the patient's life, the condition is classified as dialysis urgency and the individual urgently needs to establish RRT. Among the manifestations of dialysis urgency there's metabolic acidosis, hyperkalemia, hypervolemia and changes in the central nervous system such as drowsiness, tremors, coma, convulsion, among others⁽⁵⁾.

It is estimated that more than 133,000 Brazilians undergo some RRT. Of this total, more than 90% undergo hemodialysis, which means that the number of people undergoing hemodialysis greatly increased from 48,000 patients in 2002 to more than 118,000 in 2018.

¹It was extracted from the Course Completion Project (CBT) entitled "Clinical outcome of patients in dialytic urgency in an emergency hospital in Belém do Pará".

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Of these patients, about 108,000 have their treatment funded by the Unified Health System (*Sistema Único de Saúde* - SUS), through a network of 770 accredited clinics, distributed in only 7% of Brazilian municipalities⁽⁶⁾.

In this scenario, the study of dialysis urgency and its main clinical outcomes are extremely relevant to demonstrate the main reasons why people urgently need RRT and what the consequences are of abruptly initiating renal replacement therapy, without prior preparation.

Thus, considering the above, the following guiding question arose: what is the clinical outcome of uremic patients who have undergone urgent renal replacement therapy? Thus, the present study aims to investigate the clinical outcome of patients in dialysis urgency undergoing renal replacement therapy, through an integrative literature review.

METHOD

The method chosen to meet the research objective was an integrative literature review. This is a method that allows the synthesis of knowledge through a systematic and rigorous process. Its conduct is based on the same precepts of methodological rigor as the research. The steps of this method are: 1) elaboration of the review question; 2) search and selection of primary studies; 3) extraction of data from studies, 4) critical evaluation of primary studies and 5) synthesis of the results of the review⁽⁷⁾.

The present study carefully respected the five stages listed.

After the elaboration of the guiding question and theoretical support on the theme, the research of studies that contemplated the proposed theme was carried out from March 1 to August 30, 2020. We searched for scientific evidence available in the electronic databases: Latin American and Caribbean Literature in Health Science (LILACS); Medical Literature Analysis and Retrieval System Online (MEDLINE), Nursing database (BDENF) and PUBMED, as they are databases that have an extensive collection of quality scientific papers on health.

The inclusion criteria were: articles with texts available in full, online, free of charge and related to the theme "clinical outcome of patients in dialysis urgency"; published between January 2010 and July 2020, in English and Portuguese. Dissertations and articles that did not refer to the topic were not included in the research.

RESULTS

The descriptors found in the Health Sciences Descriptors (HSD) and keywords for the scientific search were associated: "Hemodialysis"; "Emergency"; "Renal Dialysis", "Mortality", "Clinical outcome" and "Dialysis urgency". From the associations of these descriptors and keywords, the results described in Table 1 were found.

Table1. Distribution of articles found, excluded and selected according to associations of descriptors and keywords.

Associations	Found	Excluded	Selected
Hemodialysis and Emergency	276	268	8
Dialysisurgency and Hemodialysis	2	1	1
Clinical outcome and Hemodialysis	21	19	2
Renal dialysis and mortality and emergency	45	43	2
TOTAL	344	331	13

Source: It was created by the authors.

For the selection of the texts for the research (data extraction stage), a previous reading of the titles and their abstracts was performed by the researchers, checking if they had adherence to the study theme. In this pre-selection, a total of 344 articles were found.

Next, a brief reading of the methodology, results and considerations of the studies was

carried out in order to verify its relation with the researched topic. After that, of the 334 pre-selected articles, only 13 were related to the theme and were included in the present research. The texts resulting from the research were read in full and organized in a table for better visualization and understanding. Data analysis was performed in a descriptive manner, allowing

evaluating the available literature on the investigated topic.

The table 2 presents an overview of the 13 selected researches, according to their respective

authors and year of publication, place and title of the research, methodological aspects and listed results.

Table 2. Distribution of selected articles, according to the methodology proposed by the authors.

AUTHOR/ YEAR	TITLE/ COUNTRY	TYPE OF STUDY	MAIN RESULTS
Bialeski AB, 2018	Factors related to hemodialysis time and clinical outcomes in chronic kidney patients Brazil	Retrospective cohort study with adults undergoing hemodialysis	Among 120 patients included in the study, the average age was 61.8 years, with a predominance of males, white race, primary education level, median income close to the value of the current minimum wage. The main sector of referral for hemodialysis was nephrology. The main underlying diseases identified were diabetes mellitus and systemic arterial hypertension. In 14% of the patients, an arteriovenous fistula was made. Death was recorded in 44.2% of patients and survival improved from 76.1% in one month to 49.3% in one year of treatment. Factors associated with death were: referral to the ICU and the Basic Health Unit.
Bersan SAL, Amaral CFS, Gomes IC, Cherchiglia ML, 2013	Lethality and hospitalizations of hemodialysis patients in a health plan Brazil	Cohort study of hemodialysis incidents	311 individuals on hemodialysis were studied, 55.5% were men, mean age of 62. The prevalence increased 160% in the studied period. In the survival analysis, mortality was higher among older adults, in those who did not visit a nephrologist, in those who used a temporary vascular catheter as the first access, with diabetes mellitus and those who were hospitalized in the same month of the beginning of hemodialysis. In the Cox model, older age, diabetes mellitus, higher risk of death, not having a previous consultation with a nephrologist, and being admitted to the first month of hemodialysis were associated. Longer hospital stay/year of treatment was not associated with sex.
Luft J, Boes AA, Lazzari DD, Nascimento ERPD, Busana SDA, Canevar BP, 2016	Acute kidney injury in an intensive care unit: clinical characteristics and outcomes Brazil	Quantitative study with cross-sectional, documentary and retrospective type	Prevalence of male gender was identified, mean of 63.43 years-old, the clinical reason was the most frequent for hospitalization, with one or more associated comorbidities. The most prevalent renal injury was the acute, prerenal chronic. Regarding the reasons that led to the injury, septic shock was more recurrent. The treatment of choice was conventional hemodialysis, by catheter. The most common outcome was death.
Spigolon DN, Teston EF, Costa MAR, Maron E, Souza RRD, Neto AM, 2018	Accessibility to treatment and health status of hemodialysis patients Brazil	Quantitative, cross-sectional, descriptive study	Of the 151 patients, 49.6% are elderly individuals; 54.3% have low education; 66.2% have a monthly income of up to two minimum wages; 93.4% have their treatment financed by the Unified Health System, however, 45.7% refer to treatment expenses; 66.9% mention failure to comply with conservative treatment; 84.1% received pre-dialysis care; 84.1% declared their self-perceived health to be good and half of them are accompanied by primary health care (50.3%).
Sanches RDCN, Figueiredo FSF, Rêgo ADS, Decesaro MSN, Salci MA, Radovanovic, CAT, 2016	Therapeutic itineraries of people with chronic kidney disease and their families Brazil	Exploratory-descriptive study with a qualitative approach	The family appeared as the first and main place of search for care. Subsequently, family members start walking together with the sick member in search of professional care, maintaining culturally acquired knowledge and beliefs.
Viegas ADC, Muniz RM, Schwartz E, Feijó AM, Barboza MCN, Monfrim XM, 2017	Young adult on hemodialysis: from the discovery of the disease to the impasses of diagnosis and treatment Brazil	Exploratory-descriptive study with a qualitative approach	The study shows that despite significant advances in the health system, over time, there is still a need to overcome obstacles, as the obstacles found in the diagnostic stage were evident, which certainly aggravates the condition of the person with CKD.

Be continued...

Araújo RCDS, Silva RARD, Bezerra MX, Onofre MS, Araújo AEVD, Silva KMPD, 2014	Therapeutic itinerary of chronic renal patients undergoing dialysis Brazil	Qualitative descriptive-exploratory study.	The study showed that the therapeutic itinerary of the interviewed patients was marked by the discovery of kidney disease, the search for health care, dialysis treatment and future perspectives.
Kiani B, Bagheri, Hoseini T, Tara M, 2017	Hemodialysis service in northeastern Iran Iran	Cross-sectional study through interview	Research shows that an adequate allocation of hemodialysis machines in each area is essential to reduce health inequity in relation to the emergency hemodialysis service.
Canton CG, Rodenas A, Aperador CL, Rivero Y, Anton G, Monzon T, et al, 2019	Fragility in hemodialysis and short-term bad outcome prediction: mortality, hospitalization and visits to hospital emergency services Spain	Observational prospective longitudinal study	Hemodialysis patients have a high prevalence of frailty, which is associated with poor short-term results and higher mortality rates, visits to hospital emergency services and hospitalization.
Bian Z, Gu H, Chen P, Zhu S, 2019	Comparison of prognosis between emergency and scheduled hemodialysis China	Quantitative study where demographic, clinical and survival time data were collected through hospital history	The overall survival rate was significantly better among patients in the programmed hemodialysis group than in the emergency hemodialysis group. The mortality rate within 3 months of emergency hemodialysis was 4.8%, while the mortality rate within 3 months of programmed hemodialysis was 1.1%.
Chien CW, Huang CJ, Chao ZH, Huang SK, Chen PE, Tung TH, 2019	Hemodialysis interval and its association with emergency care and mortality China	Retrospective cohort study	Research shows that long interdialytic intervals can induce emergency dialysis.
Couto AG, Briones JLT, Lucas MF, Gorin R, Mendiola NR, Álvaro SJ, et al, 2011	Causes of unscheduled initiation of hemodialysis Spain	Retrospective observational study	The study shows that the delay in planning vascular access or peritoneal catheters was responsible for only 25% of unscheduled initiations of hemodialysis treatment. The other causes were beyond the reach of the hospital organization, many of which were unpredictable and therefore difficult to improve.
Hundemer GL, Fenves AZ, Phillips KM, Emmett M, 2016	Initial peritoneal dialysis for TKD: Initial multicenter experiences in the United States U.S	Quantitative approach study	The results of the study show that Peritoneal Dialysis is a viable alternative to hemodialysis for patients with TKD who require unplanned initiation of dialysis therapy.

Source: It was created by the authors.

Of the thirteen studies selected, six are foreign and seven national research (five developed in the South of Brazil, one in the Southeast and one in the Northeast). In addition, there was a predominance of studies with a quantitative approach on the subject (ten in total).

The analyzed studies allowed tracing a socioeconomic profile of people who undergo

hemodialysis, who have an average age between 61 and 63 years-old, predominantly male, white, with low education and low income (1 to 2 minimum wages of the current year of the researches). In addition, they have one or more associated comorbidities, the main ones being SAH and DM. Death is the most common clinical outcome⁽⁸⁻¹¹⁾.

DISCUSSION

From the analysis of the studies obtained with the associations of descriptors and keywords, the low amount of research that addresses the theme was observed, showing that although kidney disease has grown exponentially in Brazil and worldwide, measures have not been adopted to prevent the increase of the disease. In addition, there is little research that shows why people are seeking care directly in the high complexity of health and in an advanced stage of kidney failure, making them need an emergency RRT.

Historically, the male population seeks less health facilities to carry out disease prevention and control, as well as low schooling can be a major factor in understanding the importance of treating chronic diseases and preventing RI. Low income, in turn, constitutes a factor that makes it more difficult for this population to access services as a whole, directly reflecting on needs that range from patient transportation to dialysis sessions (which often occur in another municipality) even the purchase of medicines and supplies that, eventually, are not distributed (or are in short supply) in the public health system. It is noteworthy that the majority of patients in dialysis urgency go to SUS to carry out their treatment⁽³⁾.

The qualitative approach studies that make up the sample mainly highlight the therapeutic itinerary taken by patients who are diagnosed with RI, finding in the family the first place of help, followed by the search for health care (even though on an urgent and non-preventive basis), hospitalization, beginning of dialysis treatment and feelings of hope about future perspectives⁽¹²⁻¹⁴⁾. These studies also demonstrate that access to the service has several problems, ranging from the diagnostic stage to the beginning of the treatment. In addition to these, they expose the lack in the number of vacancies in the service and the concentration of specialized hospitals and hemodialysis clinics in large urban centers, often forcing the patient to move from their city of residence to another that provides the service, which certainly it worsens their health condition^(13,14).

Regarding the diagnostic difficulty, the fact

is corroborated by the scientific literature, which highlights the appearance of the symptoms of RI generally when the kidneys are only 10% to 15% of their functional capacity, requiring greater accuracy and professional perception in the diagnostic investigation⁽⁵⁾. A way to reconcile a quick service to this diagnosis (often late) would be the strategic allocation and better distribution of machines/hemodialysis reference centers in key areas that facilitate the population's access to services⁽¹⁵⁾.

The fragile state of patients undergoing dialysis is also extremely relevant for a poor prognosis^(11-14,16), which are very susceptible to sudden changes in their general condition and, thus, increasing the frequency of their visits to emergencies and hospitals⁽¹⁶⁾. This relation between chronic kidney patients and hospitalization directly reflects a greater weakness and a higher mortality rate^(9,17,18), especially if this hospitalization occurs in the first month after the start of hemodialysis sessions⁽⁹⁾.

This fragility has been defined as a deterioration syndrome or a state of greater vulnerability to stressful situations, characterized by the reduction of biological functional reserves. Patients undergoing hemodialysis and who are in this situation usually seek emergency services more frequently; have higher rates of hospitalization and mortality. It is also noteworthy that the fragility of patients on hemodialysis is associated with demographic and clinical factors, advanced age and a higher rate of comorbidities⁽¹⁹⁾.

Both the specialized literature and the sample of studies collected ratify that the population most susceptible to kidney disease is the elderly people, because as the years go by, physiologically, nephrons deteriorate. In addition, the incidence of chronic diseases common in this population (such as SAH and DM) strongly corroborates the appearance of RI^(1,9). However, regardless of the age of the affected population, the overall survival rate of patients with RI was better in patients who had a scheduled onset of RRT than those who required an emergency RRT⁽¹⁷⁾.

Among the studies analyzed, the use of

catheters and hemodialysis were the forms widely used for patients in dialysis urgency^(8-11,17,18,20). However, only one multicenter study reported experiences of peritoneal dialysis as a viable alternative to hemodialysis in patients who need unplanned dialysis therapy⁽²¹⁾.

In most cases, dialysis treatment occurs once a day, three times a week. However, it is important to take into account the clinical condition of each patient, as long periods between sessions can generate progressive fluid accumulation, more severe electrolyte disturbances and greater cardiovascular instability, resulting in emergency care or even favoring the death outcome, which can occur on the last day of a long interval for the next dialysis session⁽¹⁸⁾.

The length of stay in the hospital, the urgent start of hemodialysis, the geographical situation in relation to the centers that provide dialysis treatment, as well as the use of central venous catheter in detriment of the arteriovenous fistula were unequivocal indicators of the marked number of deaths in the treatment of the disease renal. Performing an early diagnosis and maintaining effective control of underlying diseases, for example, can directly reflect on a good prognosis, thus avoiding the use of emergency RRT. In addition, dimensioning and equipping hospital institutions so that they can serve geographically more isolated populations must be taken into account.

CONCLUSION

Although the research was developed in a specific time frame of published studies, it was found that the theme explored has a recent approach in the literature and international interests, with studies carried out in different countries that have great cultural, social differences in the sample and geographic with each other.

This study showed that the most common clinical outcome in patients in dialysis urgency is death due, among other factors, to insufficient control of the main underlying diseases that cause kidney disease in association with the difficulties of diagnosing the condition in the early stages. This causes the user to carry out his treatment urgently, which can lead to several complications and, thus, directly affect his prognosis.

Research on the clinical outcome of patients in dialysis urgency is still insufficient, considering the severity of the disease. Thus, knowing the clinical outcome of patients seen in emergency dialysis services may, in addition to directing more accurate studies on the survival of this public after starting treatment, encourage more effective local or regional health policies for the prevention and/or management of diseases kidney.

DESFECHO CLÍNICO DE PACIENTES EM URGÊNCIA DIALÍTICA: UMA REVISÃO INTEGRATIVA DA LITERATURA

RESUMO

Objetivo: Investigar o desfecho clínico de pacientes em urgência dialítica submetidos à terapia renal substitutiva, por meio de uma revisão integrativa da literatura. **Método:** Revisão integrativa da literatura de estudos publicados de janeiro de 2010 a julho de 2020, na íntegra, em inglês e português, nas bases de dados: Literatura Latino Americana e do Caribe em Ciência da Saúde, Medical Literature Analysis and Retrieval System Online, Base de dados de Enfermagem e PUBMED. Foram utilizadas palavras-chave e descritores: "hemodiálise", "emergência", "diálise renal", "mortalidade", "desfecho clínico" e "urgência dialítica". Os textos foram pré-selecionados a partir da leitura dos títulos e resumos, verificando sua aderência ao tema, encontrando-se 344 artigos. A seguir, foi realizada a leitura dos resultados e considerações dos estudos. Dos 344 artigos pré-selecionados, apenas 13 foram incluídos. **Resultados:** Há recorrência da urgência dialítica, sendo o óbito o principal desfecho clínico. **Conclusão:** Os estudos acerca dos desfechos clínicos de pacientes em urgência dialítica ainda são poucos se comparado à dimensão que a doença renal possui na população mundial. Conhecer esses desfechos dará subsídios para novos estudos sobre a sobrevivência desses pacientes e para políticas de saúde mais eficazes.

Palavras-chave: Diálise renal. Emergência. Mortalidade. Urgência dialítica. Desfecho Clínico.

RESULTADO CLÍNICO DE PACIENTES EN URGENCIA DIALÍTICA: UNA REVISIÓN INTEGRADORA DE LA LITERATURA

RESUMEN

Objetivo: investigar el resultado clínico de pacientes en urgencia dialítica sometidos a la terapia renal sustitutiva, por medio de una revisión integradora de la literatura. **Método:** revisión integradora de la literatura de estudios publicados de enero de 2010 a julio de 2020, en su totalidad, en inglés y portugués, en las bases de datos: *Literatura Latino Americana e do Caribe em Ciência da Saúde*, *Medical Literature Analysis and Retrieval System Online*, *Base de dados de Enfermagem* y PUBMED. Fueron utilizados los descriptores y las palabras clave en portugués: “hemodiálise”, “emergência”, “diálise renal”, “mortalidade”, “desfecho clínico” y “urgência dialítica”. Los textos fueron pre-seleccionados a partir de la lectura de los títulos y resúmenes, verificando su adherencia al tema, fueron encontrados 344 artículos. A continuación, fue realizada la lectura de los resultados y las consideraciones de los estudios. De los 334 artículos pre-seleccionados, apenas 13 fueron incluidos. **Resultados:** hay recurrencia de la urgencia dialítica, siendo el óbito el principal resultado clínico. **Conclusión:** los estudios acerca de los resultados clínicos de pacientes en urgencia dialítica todavía son pocos comparados a la dimensión que la enfermedad renal posee en la población mundial. Conocer estos resultados dará herramientas para nuevos estudios respecto a la pervivencia de estos pacientes y para políticas de salud más eficaces.

Palabras clave: Diálisis renal. Urgencias médicas. Mortalidad. Urgencia dialítica. Resultado clínico.

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