Esc Anna Nery 2020;24(spe):e20200413





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# COVID-19 pandemic and nursing care for patients in hemodialysis treatment

## *Pandemia de COVID-19 e os cuidados de enfermagem aos pacientes em tratamento hemodialítico*

## *La pandemia de COVID-19 y los cuidados de enfermería para pacientes sometidos a hemodiálises*

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Submitted on 10/13/2020.
Accepted on 11/18/2020.

DOI:https://doi.org/10.1590/2177-9465-EAN-2020-0413

## Abstract

**Objective:** to reflect on nursing care for hemodialysis patients in the context of the COVID-19 pandemic. **Method**: This is a reflective study carried out through the analysis of official documents from health agencies, scientific articles and other reputable sources, organized in the following axes: Pandemic of COVID-19; Chronic kidney failure and hemodialysis treatment and Nursing care for patients undergoing hemodialysis in the context of COVID-19. **Results**: Health education, continuing education and nursing supervision have gained prominence in the context of the pandemic. They have provided the necessary guidance to patients and family members and to the nursing team, for prevention and control of COVID-19. Consequently, they contributed to the health protection of patients with chronic kidney failure who already had their health compromised and could not fail to perform hemodialysis. **Final considerations and implications for practice**: In the context of the COVID-19 pandemic, nursing professionals need to redouble their attention in assisting patients in hemodialysis treatment, in addition to adapting to the new guidelines. It is hoped that this reflection will contribute to the safest possible nursing care for patients and families and for nursing professionals.

**Keywords:** Chronic Kidney Failure; Patient Care; Pandemics; Renal Dialysis; Nursing Care.

## Resumo

**Objetivo:** refletir sobre os cuidados de enfermagem aos pacientes em hemodiálise no contexto da pandemia de COVID-19. **Método**: trata-se de um estudo reflexivo, realizado mediante análise de documentos oficiais dos órgãos de saúde, artigos científicos e outras fontes conceituadas. Está organizado nos seguintes eixos: Pandemia de COVID-19; Insuficiência Renal Crônica e o tratamento hemodialítico; e Cuidados de enfermagem aos pacientes em tratamento hemodialítico no contexto da COVID-19. **Resultado:** as ações de educação em saúde, educação continuada e a supervisão em enfermagem ganharam destaque no contexto da pandemia. Elas garantiram as orientações necessárias aos pacientes e familiares e à equipe de enfermagem, para prevenção e controle da COVID-19. Consequentemente, contribuíram para a proteção da saúde dos pacientes com insuficiência renal crônica, que já apresentavam sua saúde comprometida e não poderiam deixar de realizar a hemodiálise. **Considerações finais e implicações para a prática:** no contexto da pandemia da COVID-19, os profissionais de enfermagem precisam redobrar a atenção na assistência prestada aos pacientes em tratamento hemodialítico, além de adaptarem-se às novas orientações. Espera-se que esta reflexão contribua para que os cuidados de enfermagem sejam os mais seguros possíveis, tanto para pacientes e familiares quanto para os profissionais de enfermagem.

**Palavras-chave:** Insuficiência Renal Crônica; Assistência ao Paciente; Pandemias; Diálise Renal. Cuidados de Enfermagem.

## Resumen

**Objetivo:** Reflexionar sobre el cuidado de enfermería de los pacientes en hemodiálisis en el contexto de la pandemia COVID-19. **Método:** Se trata de un estudio reflexivo realizado a través del análisis de documentos oficiales de organismos de salud, artículos científicos y otras fuentes acreditadas, organizado en los siguientes ejes: Pandemia de COVID-19; Insuficiencia renal crónica y el tratamiento de hemodiálisis y Atención de enfermería a pacientes en hemodiálisis en el contexto del COVID-19. **Resultados:** Se pudo reflexionar que las acciones de educación en salud, educación continua y supervisión de enfermería cobraron protagonismo en el contexto de la pandemia, a fin de garantizar la orientación necesaria a los pacientes y familiares y al personal de enfermería, para la prevención y control del COVID-19. Consecuentemente contribuyeron a la protección de la salud de los pacientes con insuficiencia renal crónica que ya tienen su salud comprometida y no pueden dejar de someterse a hemodiálisis. **Consideraciones finales e implicaciones para la práctica:** En el contexto de la pandemia de COVID-19, los profesionales de enfermería necesitan redoblar su atención en la atención brindada a los pacientes en hemodiálisis, además de adaptarse a las nuevas pautas. Se espera que esta reflexión contribuya a que el cuidado de enfermería sea lo más seguro posible, tanto para los pacientes y familiares como para los profesionales de enfermería.

**Palabras clave:** Insuficiencia Renal Crónica; Atención al Paciente; Pandemias; Diálisis Renal; Atención de Enfermeira.

## INTRODUCTION

The new coronavirus - called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), which causes the Coronavirus Disease 2019 (COVID-19) -,[1] originated in Wuhan, China, more precisely in December 2019, after reported cases of pneumonia with unknown etiology in residents of the region.[2] In January 2020, the World Health Organization (WHO) proved the presence and spread of the new virus and, at the end of the same month, announced the epidemic as an international emergency, when different countries were already registering confirmed cases, such as the United States, Canada and Australia.[3-5]

In Brazil, at the beginning of February 2020, the first suspicious cases started to be investigated, but still without confirmation records.[3] In March, as the disease progressed, the WHO decreed a pandemic state, after 118,319 cases and 4,292 deaths around the world.[6] By the end of August, of the approximately 25 million confirmed cases and 852,758 deaths in the world in Brazil alone, almost four million confirmed cases and 121,381 deaths had already been recorded.[7]

SARS-CoV-2 has the potential for transmission by respiratory droplets and close contact with infected people and, due to its high transmissibility, essential care is needed such as hand hygiene with water and soap or 70% gel alcohol, the use of masks and, mainly, social distancing.[8,9] Although information on how the mechanism of action of the new coronavirus is configured is still being studied, research has already pointed out that people with chronic diseases, such as Chronic Kidney Failure (CKF), are part of the group with higher risk.[10,11]

In addition, studies have shown that Systemic Arterial Hypertension (SAH) and Diabetes *Mellitus* (DM) are risk factors for both CKF and the occurrence of health complications as a result of COVID-19. People who present with SAH are more vulnerable to SARS-CoV-2 because it can affect the heart muscle and the virus is believed to infect cells through the Angiotensin 2 Converting Enzyme (ACE2), which plays a vital role in the cardiovascular and immune systems, although the specific mechanisms are still uncertain.[12] In DM, the individuals have a low immunity, due to the lack of metabolic control linked to the elevation of blood sugar, besides the possible overweight.[13]

This confluence of risk factors ends up making patients with CKF more vulnerable to COVID-19 and its complications more severe, since the risk of aggravation is related to the greater age and duration of the disease and the state of metabolic control, and can even lead to death.[13] It is important to note that patients with CKF already have impaired metabolic control, since the kidneys become inefficient to perform the blood filtration process,[14] in need of Renal Replacement Therapy (RRT), with more use being made of hemodialysis (HD).[15,16]

In the hemodialysis services, specifically, there is a greater concern in the prevention of infection by the virus, mainly due to the fact that the hemodialysis treatment occurs in collective rooms,[17] with customers coming from different places and for having contact with other people. Thus, to stop the contamination by the virus, the government agencies have committed themselves to creating policies and guidelines for good practices and have established specific guidelines for health professionals.[18]

From then on, it became necessary to adapt to the new policies and measures of infection prevention and control, both by health units and professionals and by patients and relatives/accompanies, in order to avoid or reduce as much as possible the transmission of SARS-CoV-2.[18] In view of the above, questions about the care of chronic kidney patients in pandemic scenarios have emerged, as has occurred with COVID-19, and this manuscript is being produced, which aims to reflect on nursing care of patients in hemodialysis treatment in the context of the COVID-19 pandemic.

## METHOD

This is a reflection article that was carried out from the critical reading of official documents from health agencies, scientific articles and other reputable sources. The selection of reading materials was carried out from April to October 2020 in the portals Virtual Health Library (VHL) and Periodical CAPES. Legislation and guidelines published by the Brazilian Ministry of Health, Centers for Disease Control and Prevention (CDC), National Health Surveillance Agency (ANVISA), Brazilian Society of Nephrology (BSN), World Health Organization (WHO) and Pan American Health Organization (PAHO) were also used.

## RESULTS AND DISCUSSION

After reading the selected materials to support the reflection on nursing care for patients undergoing hemodialysis treatment in the context of COVID-19, it was first necessary to provide more detail on the context of the COVID-19 pandemic and on CKF and hemodialysis treatment.

### COVID-19 pandemic

The epicenter of COVID-19 took place in a wholesale market for seafood and live animals, the Huanan Seafood Market, in Wuhan, Hubei Province, southern China, at the end of 2019. By 2020, the virus had already spread to hundreds of countries and caused numerous deaths, causing biosafety measures, such as contact precautions and aerosols, to be adopted in order to reduce the risks of transmission.[2,8,19]

In Brazil, the first case was registered in São Paulo in February 2020 and the first death in March, in the same city, being this same month declared the community transmission at national level.[13,20,21] In less than six months there were already almost four million confirmed cases and around 120,000 deaths in the country.[20]

Until August 2020, the possible symptoms of COVID-19 were: cough, fever, runny nose, sore throat, difficulty breathing, tiredness, decreased appetite, gastrointestinal disorders and loss of taste and smell.[22] The symptoms may present themselves in a milder or more severe way, regardless of the age of the infected person and, therefore, the occurrence of more severe symptoms, such as respiratory problems, chest pain, mental confusion

and bluish lips and face should be observed, because, in these circumstances, it is recommended to seek immediate medical care.[23] Common complications include Severe Acute Respiratory Syndrome (SARS), arrhythmias, myocardial ischemia, myocarditis, shock, pneumonia, kidney failure, and even death.[8,13,24]

Based on the information available so far, the elderly, children, pregnant women, puerperals, smokers, cardiopaths, obese, diabetics, asthmatics, people with chronic lung diseases, immunocompromised, asylates, street dwellers, indigenous people, those deprived of their liberty, chronic kidney patients and those on hemodialysis have been considered as groups at risk for the development of the most serious forms of COVID-19 and, therefore, need to rigorously comply with prevention measures in order to reduce mortality risks.[13]

Because it lodges itself in the respiratory tract, the virus can be transmitted by infected people through close contact, such as a handshake with droplets of saliva and secretions of coughs and sneezes, and also through objects and surfaces with the presence of the microorganism, such as cell phones, tables, toys, household utensils, stethoscopes and thermometers.[9,22] In October 2020, researchers also discovered the possibility of air transmission, through aerosols that can remain in suspension for even hours, in closed places with inadequate ventilation such as restaurants and fitness centers, and in these cases the virus can be transmitted to people who are even further physically from the infected person.[25,26]

Another pertinent issue is the fact that there is pre-symptomatic transmission, which occurs when the carrier of the disease has no symptoms, but has potential for the spread of the virus, since the incubation period varies, on average, from the fifth to the fourteenth day of infection.[27,28]

The diagnosis of the infection is based on clinical research, epidemiological scenario and imaging and laboratory tests,[22] such as serology, rapid test and Reverse Transcription Polymerase Chain Reaction (RT-PCR). Of the three, the RT-PCR is considered the gold standard, because it identifies the presence of the virus in the respiratory tract, detecting infection in its acute stage and contributing to the diagnostic confirmation of symptomatic or asymptomatic individuals.[1] Hence the importance of mass testing, which enables the early identification of contaminated persons and the recommendation of isolation, in order to reduce transmission and perform epidemiological surveillance more effectively.

It is worth mentioning that social isolation is the separation of sick or infected people, to avoid the transmission and dissemination of the disease. Quarantine is related to the restriction of activities or separation of people who are not sick, but who may have been exposed to the disease or infectious agent, with the aim of monitoring symptoms and early detection of cases.[29] Any quarantined person who develops febrile illness or respiratory symptoms should be treated as a suspected case of COVID-19 and thus redouble attention to the practice of respiratory hygiene/cough etiquette.[18,29]

Given the high transmissibility of SARS-CoV-2, several governmental and health agencies are committed to creating guidelines that reinforce safety measures and contain its advance. Among the main measures proposed, social isolation is often stimulated, the hygienization of hands with water and soap or 70% gel alcohol and the incorporation of masks into the daily lives of the population.[8,9]

In addition, public and private services also need adjustments, especially when the source of contamination can no longer be identified, in which case transmission is classified as "community transmission". Thus, state and municipal managers should be attentive to adapt the guidelines according to the local reality. Some of the prevention measures include vaccination against influenza, reduction of displacement to work and changes in behavior and routine, with the adoption of alternative schedules in order to avoid agglomerations.[30]

For those who do not have the possibility to stay at home and to adapt their work to be carried out in their homes, it is recommended that, when using public transportation, they follow the necessary recommendations according to the National Association of Urban Transportation Companies, such as the continuous use of masks within public transportation; the reduction of passengers; the reinforcement of the cleaning and sanitization of buses, terminals and points and the dispensing of alcohol gel at 70% for passengers and employees.[31] It is also important to keep the windows open during circulation, to have posters explaining the pandemic, in places of easy visibility for passengers, and the provision of Personal Protective Equipment (PPE) for employees.[31]

## Chronic Kidney Failure and Hemodialysis Treatment

CKF is a chronic nontransmissible disease, which fits in a context of paramount importance in the field of Public Health. In Brazil, there is a progressive increase in its incidence, especially due to the potential increase in life expectancy of the population and the presence of comorbidities such as HAS, DM and sedentary lifestyle.[32]

The CKF is characterized by the insufficiency of the kidneys, which due to several factors and pathologies, becomes ineffective in its filtration process as well as in its capacity to maintain the hydroelectrolytic balance, accumulating toxic and harmful elements to the body.[14] As a consequence of the numerous systemic complications and the affected kidney function, the organism as a whole suffers alterations, making Renal Replacement Therapy (RRT) indispensable in its terminal stage, such as HD, peritoneal dialysis or kidney transplantation, in order to balance the disorders caused in the organism and the progression of the disease.[15]

HD is one of the most common RRT, performed by more than 90% of patients in dialysis treatment registered in 2019 in Brazil,[16] generally persistent mode for life, since kidney transplantation is not available and recommended for all patients.[33]

Individuals on kidney dialysis or hemodialysis treatment may present numerous modifications in their lives, as well as in the

lives of the people with whom they live, due to the impacts on the psychosocial field and on the issues of the treatment itself, such as the constancy and maintenance of this therapy. The disorders range from physical discomfort and the side effects of medications to changes in nutrition, infections and lower quality of life,[34] in addition to a considerable decrease in respiratory muscle strength.[35]

In view of all the challenges faced and the various changes in their lifestyle and habits, family support together with the multi-professional team becomes essential in order to encourage adaptation to treatment, as well as in coping with the changes arising from CKF and its aggravating factors.[36] It is worth mentioning that the CKF has degenerative effects in the various systems of the body, including the immune system, placing the chronic kidney patient in the group at risk with regard to preventive care for COVID-19.[37]

In view of the impact on public health and people's lives - both due to the COVID-19 pandemic and the CKF and hemodialysis treatment -, it can be inferred that the discussion on nursing care for the patient with CKF who performs renal dialysis deserves special attention, in order to reinforce the necessary specific care with these individuals, who already have weakened health and a higher risk of developing complications related to infection by the new coronavirus.

## Nursing care to patients in hemodialysis treatment in the context of COVID-19

In the dialysis service, the nurse is responsible for the management of care, acting in the organization and direction of nursing services and their technical and auxiliary activities, having a commitment with the patient and the institution as to the quality of care provided, based on the Code of Ethics of Nursing Professionals and the Law of Professional Practice of Nursing.[38-40] Thus, nursing care is indispensable in the daily life of patients in RRT and professionals need to be constantly aware of updates on the correct use of PPE, the rigor in the care provided and the measures to prevent aggravation, as has been happening in the context of the COVID-19 pandemic, recognizing signs and symptoms of the disease, so that the spread of the virus is contained, especially for these patients.[18,41]

The nurse, together with the nursing team, should: reorganize the flow of people, orienting patients and companions to avoid moving in common areas unnecessarily, as well as avoiding the sharing of food or personal objects; advise the presence of companions only in cases of extreme necessity; to guide patients and family members to make phone contact with the dialysis service in case the patient presents signs and symptoms of the disease or has had contact with third parties suspected/confirmed with the virus; besides promoting health education by providing masks, encouraging and guiding patients and companions as to the correct use during the entire stay in the dialysis service.[14,18,42,43]

The nurse should also: elect individual rooms to dialise suspect and/or confirmed patients with COVID-19; perform the disposal of lines and dialysers used in patients under suspicion or confirmation of the disease, after each hemodialysis session and ensure the sending of water and blood samples for laboratory analysis.[18,42,43]

Among the specific recommendations for dialysis units, the following are also highlighted: ensuring the continuity of dialysis treatment for patients under suspicion or diagnostic confirmation; defining strategies to reduce the spread of microorganisms in the environment and a distinct flow for symptomatic/suspected patients; guide patients and relatives to make immediate telephone contact in case of signs and symptoms or close contact with people with diagnostic suspicion/confirmation of the disease; apply questionnaires to patients to research the possible presence of respiratory symptoms; post posters with guidelines that help in understanding the hygiene measures to be adopted and provide an appropriate place for hand hygiene, reducing direct contact with taps and garbage cans to a minimum.[18,42,43]

It has also become important to make supplies available close to the armchairs, to stimulate the constant hygienization of the hands by the patients; to define personal health products for suspected or confirmed patients; to perform rigorous cleaning and disinfection in machines, furniture and equipment after the sessions; to evaluate the possibility of providing home care for patients who tested positive and to direct professionals exclusively to this function, in addition to respecting the minimum distance of one meter between chairs and encouraging educational measures for professionals who presented symptoms and who therefore needed to be removed from work.[18]

In the face of the pandemic scenario - which brought about the need for intensive adaptations -, it is worth reinforcing the right of the nurse to improve his technical-scientific knowledge to support the professional practice, in order to offer quality and safe assistance to patients and to themselves. At the same time, this is a professional's duty, since this improvement refers to the benefit of the person, family and collectivity in any circumstance.[44]

Another aspect that deserves special attention is the fact that the COVID-19 pandemic is inserted in a context in which technology is present in various ways and, at the same time that patient care demands adaptations and stricter security measures, many people feel the need to record everything that happens on their mobile devices. However, the Code of Ethics for Nursing Professionals assures professionals the right to refuse to be filmed, photographed or exposed in social media while performing their activities. This exposure violates the constitutional right of the Brazilian and the right assured to the nursing professionals to privacy, besides provoking a certain vulnerability for the professionals and patients, because the information exposed can be interpreted in several ways.[44,45]

Therefore, in this moment of intense transformations and uncertainties, the importance of health education, continuing education and nursing supervision - as essential activities developed by the nurse - should be highlighted, consolidating its commitment by offering the necessary guidance to patients and family/accompanies and by training and supervising the nursing team, for the adequate fulfillment of the actions of prevention

and control of COVID-19, which can favor the protection of the health of patients on hemodialysis treatment.

## FINAL CONSIDERATIONS AND IMPLICATIONS FOR THE PRACTICE

After the discussion and reflection carried out, it is possible to realize that there are countless challenges that health services and their teams have needed to face all over the world. Nursing professionals, who have direct and uninterrupted contact with patients, relatives and companions throughout their working hours, need to pay double attention to reduce the chances of infection for themselves and for others who are not infected with the virus. Thus, it is necessary that health services, especially those on dialysis, are always up to date with the constant and rapid discoveries and changes in the management of the new coronavirus, in order to prevent as much as possible that patients with CKF, who already have weakened health, develop the disease and possibly suffer from its complications.

It is important to emphasize that in pre-pandemic contexts, nursing care for patients undergoing hemodialysis treatment was already based on actions aimed at preventing complications, given the severity of CKF for the biopsychic and social balance of individuals. Even before the pandemic, carefully detailed protocols were employed, before, during and after the hemodialysis sessions. With the pandemic, what happened was a more rigorous attention in the development of the actions that were already carried out and the adaptation to the new guidelines, in order to prevent, not only the contamination by the already existing microorganisms, but also by the SARS-CoV-2, due to its potential of aggravation in these patients in particular.

In this direction, it is expected that the present study will allow a better understanding of the changes in the operationalization of nursing care to hemodialysis patients, in the pandemic scenario, through the new guidelines and legislation determined by the government and health entities. Moreover, it is in these challenging moments that the social commitment of nursing gains greater visibility when, by integrating the multi and interdisciplinary health team, it acts in the front line in the fight against SARS-CoV-2 consolidating its value and competence for the provision of integral care to the patient, family and collective with excellence, ethics and professionalism.

It is worth emphasizing that the main limitation of this study is related to the fact that the guidance provided was based on information available about the pandemic in official documents from government health agencies, scientific articles and other reputable sources, which may undergo changes and updates according to the new demands that may arise and the conduct of new studies. However, these guidelines, along with prevention and control measures during care, may contribute to minimize the dissemination of COVID-19 and also to develop a new look at the relevance of nursing care. Finally, it is expected that the product generated by this reflection will enable the transformation of knowledge into a practical tool so that nursing care is as safe as possible, both for patients with CKF and for their relatives/accompanies and for the nursing professionals themselves.

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