

## RISK FACTORS FOR CHRONIC RENAL FAILURE IN PATIENTS WITH REPLACEMENT TREATMENT OF HEMODIALYSIS WITH COVID-19

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***Betty Sarabia-Alcocer***

Universidad Autónoma de Campeche,  
Mexico.

San Francisco de Campeche, Campeche,  
Mexico.

<https://orcid.org/0000-0002-7912-4377>

***Ildefonso Velázquez-Sarabia***

Universidad Autónoma de Campeche,  
Mexico.

San Francisco de Campeche, Campeche,  
Mexico.

<https://orcid.org/0009-0000-4484-8220>

***Manuel Armando Hernández-Domínguez***

Hospital General de Zona No.1 Nueva  
Frontera

IMSS Tapachula Chiapas.

<https://orcid.org/0009-0004-0697-9720>

***Tomás Joel López-Gutiérrez***

Universidad Autónoma de Campeche,  
Mexico.

San Francisco de Campeche, Campeche,  
Mexico.

<https://orcid.org/0000-0002-3554-1347>

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***Baldemar Aké-Canché***

Universidad Autónoma de Campeche,  
Mexico.  
San Francisco de Campeche, Campeche,  
Mexico.  
<https://orcid.org/0000-0003-2636-5334>

***Eduardo Jahir Gutiérrez-Alcántara***

Universidad Autónoma de Campeche,  
Mexico.  
San Francisco de Campeche, Campeche,  
Mexico.  
<https://orcid.org/0000-0003-3659-1693>

***Román Pérez-Balan***

Universidad Autónoma de Campeche,  
Mexico.  
San Francisco de Campeche, Campeche,  
Mexico.  
<https://orcid.org/0000-0003-2366-6617>

**Abstract:** This article presents the results of an investigation that was carried out at `` universidad autonoma de campeche `` - Faculty of Medicine in which an observational, descriptive, cross-sectional and prospective study was developed to identify any disease that is a risk factor. to present Chronic Kidney Disease in patients who attended hemodialysis sessions and who presented some symptom of COVID-19, the variables analyzed in the patients were the age at the start of hemodialysis, gender and associated factors that precipitated the appearance of Chronic Kidney Failure. and therefore the use of hemodialysis as replacement therapy. The results showed that the patients had various risk factors that have been present for a long time, which tells us about the importance of adequate control and treatment of diseases to prevent complications of Chronic Renal Failure and dialysis replacement treatment.

**Keywords:** Risk Factors, Chronic Renal Failure, Hemodialysis, Covid-19.

## **INTRODUCTION**

Chronic renal failure (CRF) is a public health problem worldwide, the number of patients has been increasing in both developed and developing countries, Mexico is a country considered among the main countries that present Arterial Hypertension, Diabetes Mellitus 2, Obesity, among other pathologies, which are immersed in a large number in those patients diagnosed with CRF (Calebondo Marzo, 2002). Chronic renal failure is defined as the irreversible and progressive loss of renal function, with an increase in creatinine level two or more times that expected by age; with glomerular filtration rates below 60mL/min, for more than 3 months, which could progress as an asymptomatic disease until a glomerular filtration rate of 10mL/min is reached. Currently more than 1,200,000 people in the world survive thanks to dialysis

treatment, there are two types of dialysis, the most used is hemodialysis (HD) reaching 80 to 90% and continuous ambulatory peritoneal dialysis (CAPD) is used in 10 to 20%, with some exceptions. When choosing the type of dialysis, factors such as coexisting diseases, vital and social situations of each patient, and also information from the nephrology community on the different techniques are usually taken into account. Other factors to consider are patient and family preference, ability to perform the technical procedure in terms of safety and efficacy, cost, anatomical limitations such as hernias, spinal injuries, and physiological limitations such as peritoneal transport. It is important to know that those patients with added diseases, including Coronavirus disease (COVID-19), may have greater complications and hemodialysis is chosen as a substitute treatment. Mexico is a country considered among the main ones when it comes to Arterial Hypertension, Diabetes Mellitus 2, Obesity, among other pathologies, which are immersed in a large number of patients diagnosed with CKD (Lacson, et al. 2012, Montoliu and Lorenzo, 2020). For this reason, it is important to investigate the main and most frequent diseases added to chronic renal failure, their time of evolution and the current and onset age in order to carry out adequate control of these and thus avoid complications of CKD.

## **METHOD DESCRIPTION**

Observational, descriptive, cross-sectional and retrospective study carried out at the Vossan Hospital, Lerma, San Francisco de Campeche with patients who attended hemodialysis sessions and patients who presented any symptoms of COVID-19 during the period from January 2020 to March 2021. A review of the files was carried out by the head of the investigation, mainly collecting the data of the dialysis patients focused on

their risk factors, ages and gender to identify the diseases that are risk factors in chronic kidney disease. and the main symptoms of COVID-19 presented by hemodialysis patients. Likewise, a survey was carried out on the patients to obtain the necessary data for this investigation. Statistical analysis was performed through simple frequencies and means of central tendency. It is necessary to emphasize that the study complied with the ethical recommendations of the Declaration of Helsinki, the Mexican Sanitary Code, as well as with the General Health Law and the ethics committee and all the information was used solely for research purposes, therefore it is not damaged the integrity of the patient and the health institution.

## **FINAL COMMENTS**

### **SUMMARY OF RESULTS**

30 patients who have attended hemodialysis sessions at the Vossan City Hospital were reviewed. In this sense, the execution of this work was through the collection and review of the results that determined the risk factors in the patients, their age and gender, as well as some symptoms of COVID-19 that they presented. The variables analyzed in the patients to carry out the following study were age at the start of hemodialysis, gender and the associated risk factors that precipitated the appearance of CKD and consequently the use of hemodialysis as replacement therapy, in the same way patients with symptoms by COVID-19 presented.

The ages of the patients analyzed ranged from 23 to 79 years. The genders analyzed are feminine and masculine. Regarding gender, men predominated over women; while the ages of highest prevalence are found as the mode of 60 years and as the median 57.5.

Their most investigated risk factors are type 2 diabetes mellitus, arterial hypertension, obesity, recurrent urinary tract infections and

other associates. When analyzing the diabetes mellitus 2 variable, it was observed that 100% presented this pathology as a risk factor for CKD, with the subsequent use of hemodialysis as a replacement method for renal function. In the arterial hypertension variable, it is obtained that 70% (21 patients) suffer from this pathology and it is considered as an important risk factor for presenting CKD. In the obesity variable, it is reported that 60% (18 patients) suffer from this disease, which refers to the fact that less than half of them do not associate obesity as a risk factor for CKD. In the variable recurrent urinary tract infections, it is found that 33.3% (10 people) of these patients have presented recurrent urinary tract infections, which means that it is not a notable risk factor for CKD in the patients evaluated.

Finally, in the variable patients who presented symptoms of COVID-19, it is found that, of the 30 patients studied, 40% (12 people) presented some symptom related to the virus, of which 16.6% (5 people) had fever, 10% (3 people) presented malaise, 6.6% (2 people) presented headache and the remaining 6.6% (2 people) presented cough.

The use of hemodialysis as replacement therapy has been of great help for these patients, since, for the most part, CKD complications have not been reported. The fact that patients using hemodialysis sometimes have some symptoms in these times of pandemic makes us doubt the origin of the symptom, because sometimes there are complications during replacement therapy, which could be confused with symptoms of COVID-19, however, in this case, the patients who presented any symptoms underwent laboratory studies to rule out or confirm, as the case may be, the presence of COVID-19.

Specifically dealing with the clinical hemodialysis sector, this requires specialized care, mainly to maintain the patient's quality

of life, since, together with the CRF they present, patients carry diseases that require proper management and care to carry out a good evolution and favorable prognosis for the patient. This way, the importance of hemodialysis is highlighted, as well as the quality of care and education of the chronic renal patient, with the aim of achieving a better treatment plan.

In the case of the symptoms that could indicate the presence of COVID-19, we found that fever was the main symptom presented in hemodialysis patients, which would make us doubt whether it is the virus, or simply a complication of the therapy. of hemodialysis. Due to this, with the help of the pertinent studies, the presence of the virus was ruled out.

## CONCLUSIONS

In recent years, the use of hemodialysis has been helpful in keeping patients with CKD in a line where the maintenance of renal function is sought, since although CKD has no definitive treatment, hemodialysis could cause a significant impact for the improvement of patients; In the same way, it is important to know each one of them in order to objectively treat their risk factors and their onset and take into account their gender to keep them as stable as possible and without running the risk of complications during CKD. and its treatment with hemodialysis.

From the results obtained, we can see that the patients who have come to undergo hemodialysis at the Vossan Hospital in the City of San Francisco de Campeche, carry with them a series of important risk factors that have started for the most part a long time ago, which which tells us about the great importance of adequate control and treatment of diseases to prevent complications such as CRF and later the need for replacement treatment through dialysis.

It must be noted that, on a day-to-day basis in general medicine consultations, it is well known that patients with chronic kidney disease tend to present complications due to their risk factors, since these get out of control and on many occasions there are those who do not they want substitute management, which makes the doctor more committed to initially treating their diseases added to CRF, therefore it is important to take into account that patients with the onset of their added pathologies for more than 10 years are at greater risk of complications for suffering from CKD and other added diseases, or simply complications of CKD itself. It is also observed that the pandemic has caused some patients to present symptoms that can be associated with the use of hemodialysis or be symptoms caused by COVID-19.

## RECOMMENDATIONS

In the case of measures for patients receiving hemodialysis and the general population, it is recommended to instruct patients on universal safety measures, emphasizing hand washing and limiting physical contact according to the recommendations of the Ministry of Health. of the Nation, training in identification of the symptoms of COVID 19 and telephone or virtual contact to the dialysis unit, avoiding going directly, following the recommendations of the health authorities of the jurisdiction in which they reside, recommending that patients travel by their private means, avoiding the use of public transport (Ministry of Health, 2020).

It is suggested that, in stable and well-nourished patients on hemodialysis, screening for malnutrition must be performed every 3-6 months if the patient is under 50 years of age or every 1-3 months if they are older or have been on dialysis for more than five years. (Huang and Jimenez 2013). In hospitalized patients and those with artificial nutrition,

follow-up can be performed every 48-72 hours, until the patient is stabilized.

We suggest that nutritional monitoring must be done with dietary surveys, weight (and evolution over time), albumin and cholesterol, and/or prealbumin.

Follow-up must be closer in the elderly (>65 years), with diabetes and in patients with cardiovascular disease (Diabetes Control and Complications Trial Research Group).

Therapeutic action must be individualized and taking into account the degree of CKD (Chronic Kidney Disease) that the patient presents and their comorbidities. Regarding medical nutritional therapy, it can be divided into three different levels of action: level 1: CKD grade 1 and 2, level 2: grade 3a, 3b and 4, level 3: renal replacement therapy (Alhambra-Exposito et al 2019).

In grades 3 and 4, the recommendations for protein intake are 0.6-0.8 g/kg of weight/day, with at least 50% of high biological value to try to reduce the progression of the disease and to maintain or improve adequate albumin levels (Fouque et al 2009, Hansen et al, 2002, Pedrini et al, 1996). Regarding energy, between 30-35 kcal/kg/day are recommended to maintain an adequate weight.

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