Factors associated with chronic kidney disease in hospital Carlos Roberto Huembes

Dora Adelina Florian
Degree in Nursing. MINSA Code 12409
Master in Epidemiology University
https://orcid.org/0000-0003-1826-2044
doriflomo@yahoo.es

Nelson Reyes Garay
Undergraduate student in Medicine and Surgery, Faculty of Medicine Universidad Católica Redemptoris Mater, Nicaragua.
https://orcid.org/0000-0003-4357-6643
nelsonrgar@gmail.com

Carlos Manuel Tellez Ramos
MSc. in Higher Education in Health-UNAN, León
Degree in Language and Literature graduated from the UNAN, León.
Professor Faculty of Medical Sciences UNICA
https://orcid.org/0000-0002-8936-0031
ctellez3@unica.edu.ni

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ABSTRACT

To analyze the risk factors associated with chronic kidney disease in patients treated in the outpatient clinic of the Carlos Roberto Huembes School Hospital from January to December 2019, an observational, descriptive, retrospective, longitudinal, and correlation study with a qualitative approach was carried out. Data on sociodemographic aspects and pathological history, diagnostic methods used, and main

symptoms presented with the clinical stages of the patients under study were analyzed to analyze the risk factors associated with chronic kidney disease. The statistical analyses carried out were qualitative. From the analysis and discussion of the results obtained, the following conclusions were reached: a) A higher prevalence of chronic kidney disease was observed in males, with 82.4%, with an average age of 43 years, and rural origin with 54.9%; schooling was primary occupation was security guard with 58.8% with predominance of edema of lower limbs plus dyspnea, uric acid, poorly controlled diabetes, followed by smoking, dyslipidemia, finally, with hyperuricemia predominating stage III.

INTRODUCTION

Chronic kidney disease (CKD) is a global public health problem, with increasing incidence and prevalence, poor prognosis, and high cost. In Nicaragua, an increase has been observed, especially in the western zone, the cause of which has not yet been determined; this does not take into account the number of users who develop the disease product of *Diabetes mellitus* and hypertension (Bharat et al., 2015).

However, CKD is an evolutionary and complex clinical humoral syndrome in which a reduction in renal functional mass persists, which eventually causes irreversible damage to the various structures of the kidney and the progressive loss of renal function; This causes the death of the patient. If he does not receive renal replacement treatment (dialysis) or a kidney transplant, placing him in a new and painful "condition" of life (Foundation, 2019).

Currently, an average of 180 annual consultations are registered at the Carlos Roberto Huembes Hospital in different age groups, so it was decided to analyze the risk factors associated with CKD in patients attending the consultation with a prospective analytical study. The present research work determined the risk factors associated with CKD who attend the outpatient clinic of the Carlos Roberto Huembes Hospital. Its research objective is to know the risk factors in patients diagnosed at the Carlos Roberto Huembes Hospital since health care should be prioritized due to the increase in cases reported by the different diagnostic means.

MATERIAL AND METHOD

According to the research method, the present study is observational according the initial level of depth of knowledge is descriptive (Piura, 2006). According to the classification of Hernández et al. (2014), the type of study is of correlation with a qualitative approach. According to the time of occurrence of the facts and registration of the information, the study is prospective, because the period and sequence of the study is longitudinal and according to the analysis and scope of the results the study is analytical (Canales, 1996). The sample was made up of the total number of patients (51 patients) treated in the outpatient clinic of the Internal

Medicine service with CKD from January to December 2019. The information was extracted from the clinical record, and recorded in a collection form which was validated by a validation test before final collection. The data was stored in a database created in the SPSS version 24 program (IMB Statistic 2016). Analyses corresponding to the quality of the variables included were performed. The information is presented in the contingency tables with total percentage and correlation tests.

HYPOTHESIS

Patients with diabetes mellitus may be more likely to suffer from chronic renal failure than those patients who do not suffer from it.

RESULTS

With sound criteria, the results obtained in the study are presented, and if this is one of the purposes it is key to note that the average age of the patients was 50 years, with a Lower Limit (L.I.) of 32 and an Upper Limit (L.S.) of 52 years. Figure 1 shows the box and mustache graph, which allows us to interpret an interquartile range (Q3 - Q1) that accumulates 50% of the patients in the Internal Medicine Service, which was between 32 and 52 years old.

Here it should be noted that patients with chronic renal disease were characterized socio-demographically by being adults, with a median age of 50 years; The minimum age of patients was 32 years and the maximum age reported was 52 years. 54.9% (n=28) came from rural areas and the majority 82.4% (n=42) were male (Figure 1)

Figure 1

Prevalence of sex in chronic renal patients
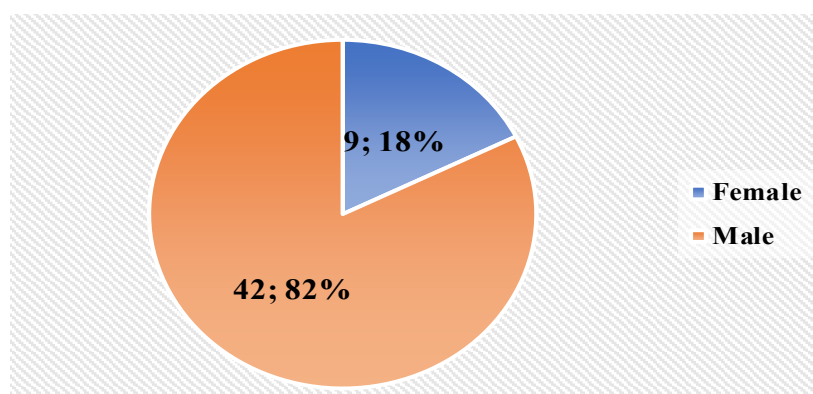
Source: *Data extracted from the clinical record of CKD patients included in this research.*

Regarding the schooling of the study population, it was confirmed that 35.3% (n=18) had approved secondary school and 58.8% (n=30) worked as a security guard. Regarding the level of the stage of the disease, stage III prevailed in patients with 66.6 % (n = 34) with poorly controlled diabetes, followed by stage IV with 13 % (n = 11) for a total of 80%, concerning toxic

habits 15% (n = 8) had an active smoking habit, the concomitant comorbidities of these patients were dyslipidemia 15% (n = 8) and with less significant representation hyperuricemia with a 3.9% (n=2). (Table 1).

Origin n= (51)

Table 1.

Origin of chronic renal patients

Origin		Frequency	Percentage
	Urban	23	45.1
	Rural	28	54.9
	Total	51	100.0

Source: *Data extracted from the clinical record of a chronic kidney patient included in this research*

Regarding the level of origin that predominated in the patients studied, rural was 54.9%, followed by urban with 45.1% rural

Table 2

Schooling of patients with chronic kidney disease

n=(51)

Schooling	Frequency	Percentage
Illiterate	5	9.8
Primary	18	35.3
High school	15	29.4
University	13	25.5
Total	51	100.0

As for the level of schooling that predominated in the patients studied, it was primary at 35.3%, followed by secondary at 29.4%, followed by university at 25.5%, concluding with illiteracy at 9.8%.

Table 3

Relationship between the clinical stage of CKD and the presence of comorbidities

n= 51

CKD Clinical Stage	Comorbidities			TOTAL
	Poorly controlled DM II	Smoking + Dyslipidemia	Hyperuricemia	
Stage II	0	0	2	2
Stage III	34	0	0	34
Stage IV	7	4	0	11
Stage V	0	4	0	4
TOTAL	41	8	2	51

Source: *Data extracted from the clinical record of a chronic kidney patient included in this research.*

Referring to this context, clinically patients manifested dyspnea (Table 2) in 15.6% (n = 8) of these five patients did not present uric acid (hyperuricemia) when establishing the relationship between these parameters using the Cramer V association test which provided a P-Value = 0.109, which is higher than the critical level of comparison = 0.05, This indicates that no statistically significant response was obtained. Therefore, Cramer's V association test demonstrated that there is no significant association between dyspnea and altered uric acid.

Table 4

Relationship between dyspnea and elevated uric acid in chronic renal patients

n= 51

Dyspnea	Uric acid	
	No	Yes
No	37	6
Yes	5	3
Total	42	9

Source: Data extracted from the clinical record of a chronic kidney patient included in this research.

Edema of the lower limbs was the main clinical sign identified in 78.43% (n = 40) when analyzing the relationship of this sign with the presence of hyperuricemia was demonstrated by the Cramer V association test that provided a value of P = 0.000, which is lower than the

critical level of comparison α = 0.05. This indicates that a highly significant statistical response was obtained, therefore there is a significant association between lower limb edema and hyperuricemia.

Chronic renal failure in patients was diagnosed using the following paraclinical methods: Urea nitrogen/creatinine ratio of 58.8% (n=30., followed by renal ultrasound and 24hrs urine protein quantification with 23.5% (n=30), followed by uric acid with 17.6% (n=9).

DISCUSSION

We studied 51 patients with chronic kidney disease, attending the outpatient clinic of the Carlos Roberto Huembes Hospital, January-December 2019. Regarding sociodemographic data, a higher prevalence of CKD was observed in males. It should be noted that the age is in the range of 43 years and that the patients were from rural areas. What has been said so far agrees with what is reported by Méndez et al. (2012). Here it is worth noting that the findings found in this research agree with the study of Méndez, which identified that CKD in apparently healthy subjects and relatives of patients who come to hemodialysis predominated an age range greater than 40 years, and of the male sex with 82.4%.

However, the results obtained in the study by Gámez et al. (2013) show some discrepancies with its findings. The authors conclude the existence of a high hospital prevalence of CKD in the elderly, more frequent in females and whites. It was found that the largest number of patients was in the aforementioned group. Despite this, it was found that the increase proportional to the increase in age has been accentuated considerably in recent years, which is considered in all the series reviewed as a risk factor reported by the Foundation (2019). In the same sense, it is worth mentioning that among the methods used for diagnosis, creatinine, and urea nitrogen (58.8%) were predominantly used, complemented by ultrasound and proteins in 24-hour urine, in frank correspondence with the study carried out by Foundation (2019).

On the other hand, it was observed that despite the diagnostic advances and sufficient knowledge about CKD and its forms of treatment, the use of diagnostic means predominated in the study population, as well as hyperuricemia. As can be seen, this agrees perfectly with the study conducted by Diezhandino (2019). It highlights that uric acid prevailed at 23%, estimating a risk factor for CKD and whose symptomatology according to the level of frequency presented in patients the following characteristics: dyspnea, edema of lower limbs and decrease in urinary volume. It should be believed that these considerations are mainly because most of the study population did not attend their medical check-ups periodically and, therefore, poor control of chronic pathologies such as diabetes and chronic hypertension that further deteriorated renal function (Royo, 2012).

Continuing with the topic, it should be mentioned concerning diagnostic methods that the bilateral Pearson correlation test provided significant statistical evidence, with a p-value of 0.01. And it happens, inevitably, that the association between diagnostic methods and associated factors such as poorly controlled diabetes, smoking plus dyslipidemia, and hyperuricemia, are highly significant in determining the prevalence of CKD. It is worth emphasizing that despite the diagnostic advances and knowledge about CKD (already mentioned), hyperuricemia predominated. This result concomitates with the results of Diezhandino (2019), in which he referred to the prevalence of 23% of uric acid as a risk factor for CKD. There he highlighted that the patients presented symptoms of dyspnea, edema of the lower limbs, and a decrease in urinary volume.

Finally, it should be noted that when correlating the factors associated with the development of CKD, stage III and poorly controlled diabetes predominated in the population. It should also be noted that in the majority of the population, elevated uric acid levels, smoking, and dyslipidemia were observed, which caused deterioration of renal function. Finally, these results are similar to other studies found in articles published by the journal that deal with these nephrology issues. There it is mentioned that there is a close relationship between CKD with some determinants of diseases such as poorly controlled diabetes and poorly controlled hypertensive patients; accompanied, of course, by high uric acid test results plus harmful habits such as smoking, and a little further, to dyslipidemia.

CONCLUSIONS

The patients studied had an average age of 43.8 years, were male, and whose trade mainly worked as security guards. The schooling of these did not exceed primary school, and the origin was from urban areas. The diagnostic method used in the study patients was dominated by the ratio of urea nitrogen/creatinine, followed by ultrasound + 24-hour proteins, uric acid. Similarly, it was observed that the relationship between the clinical manifestations and complementary examinations was a predominance of edema of lower limbs plus dyspnea about the associated factors detected with clinical stage III. At the time of diagnosis, poorly controlled diabetes, smoking, dyslipidemia and hyperuricemia predominated. So it can be concluded that the hypothesis raised in this research is proven, although it is worth mentioning that other concomitant factors trigger CKD.

Referring to this context, we must take into account some recommendations that could serve a lot to guarantee health care for patients with CKD. This means that prevention is an effective measure that will help guarantee people's health so a program should be implemented to recruit patients at risk to carry out an adequate intervention to avoid complications. In this

way, the resources and efforts of health personnel are optimized to permeate the impact caused to the health system and society itself, the use of renal replacement therapies.

Conflict of interest: As authors of this article we declare that we have no conflict of interest related to the present study.

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