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Research Article

Knowledge And Attitudes Of Non-Nephrologists About Chronic Kidney Disease In N'djamena (Chad).

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Abstract

Introduction: The objective of our study was to determine the knowledge and attitudes of non-nephrologist physicians regarding CKD in N'Djamena (Chad).

Patients and methods: This was a survey conducted over a period of one (1) month, from October 1, 2020, to November 1, 2020. All non-nephrologist physicians practicing in public and private health facilities in the city of N'Djamena who consented to participate in the study were included.

Results: General practitioners accounted for 66.3% of the doctors and 82.2% worked in the public sector. Seventy-four percent (74%) of doctors reported difficulties in defining chronic kidney disease. Sixty-nine percent (69%) of doctors knew how to use urine strips to screen for CKD. Only 8% of physicians reported requesting serum creatinine to estimate GFR for assessing kidney function. The majority of physicians estimated GFR using the Cockcroft-Gault method (88%), while only 33% of physicians used the MDRD method. The majority of physicians recognized that hypertension is a risk factor for CKD in 80% of cases. However, diabetes was mentioned by only 49% of them. The main renal complications identified by physicians were anuria and uremic syndrome in 79.2% and 72.3% of cases, respectively, while hyperkalemia and anemia were identified in only 48.5% and 32.7% of cases, respectively. Sixty-two percent (62%) of doctors referred patients to a nephrologist before stage 3B CKD.

Conclusion: General practitioners and non-nephrologist specialists lacked general knowledge about CKD, particularly its definition. They also had inadequate attitudes regarding diagnosis and referral to nephrologists. Educational efforts are warranted to improve physicians' knowledge and skills regarding CKD in Chad.

Keywords: Chronic kidney disease, non-nephrologist physicians, knowledge, attitudes, N'Djamena, Chad.

INTRODUCTION

Chronic kidney disease (CKD) is defined as the presence of renal insufficiency lasting more than three months, corresponding to a glomerular filtration rate (GFR) of less than 60 ml/min/1.73 m², and/or a morphological or histological renal abnormality, provided that it is "clinically significant," and/or an abnormality in blood or urine composition secondary to kidney damage [1].

The prevalence of CKD worldwide is estimated at 11-13% and, in the United States, it is the most costly chronic disease. Several risk factors for CKD have been identified, including hypertension and diabetes [2]. In Africa, its exact prevalence is only well documented in a few countries. In Côte d'Ivoire, it affects 5.8% of patients admitted to hospital, of whom only 5% have access to replacement therapy [3].

This prevalence is often linked to the lack of early screening, but also to the late referral of patients to nephrologists.

According to the global action plan for the prevention and control of noncommunicable diseases, CKD can potentially be prevented by inexpensive means such as urine dipsticks (UD) [4].

As the first point of contact for healthcare, general practitioners must first screen for CKD and then refer the patient to a nephrologist [5].

According to the latest data from the Chadian medical directory, there are only five nephrologists in Chad. Given this shortage of nephrologists, non-nephrologists must be

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assessed and equipped with the techniques for preventing and screening for CKD in order to detect it early and improve its management before referring patients to a nephrologist if necessary.

The aim of our work was to help improve the knowledge and attitudes of non-nephrologists about chronic kidney disease.

PATIENTS AND METHODS

This was a survey conducted over a period of one (1) month, from October 1, 2020, to November 1, 2020. All non-nephrologist physicians practicing in public and private health facilities in the city of N'Djamena who consented to participate in the study were included. For each physician included, sociodemographic variables (age, gender, medical specialty, length of practice, sector of activity) were collected, along with a description of non-nephrologists' knowledge of CKD (definition of CKD, screening with urine dipsticks, methods for estimating and assessing renal function, nephroprotective antihypertensive drugs recommended in cases of CKD), descriptions of the practical approaches taken by non-nephrologists when CKD is suspected (circumstances in which CKD is screened for, management of patients with CKD, dietary education on CKD), criteria for referral to a nephrologist by non-nephrologist physicians (timing of referral to a nephrologist, difficulties associated with referral to a nephrologist, existence of contact and coordination of care between the nephrologist and the non-nephrologist physician, methods for referring a patient to a nephrologist) and capacity building for healthcare personnel in the screening, diagnosis, and management of CKD (participation in continuing medical education, participation in the organization of a CKD care network, and the value of creating a CKD registry).

The data were collected and analyzed using SPSS version 18.0 (Statistical Package for Social Sciences 18.0) and presented in tables and figures. Quantitative data are expressed as mean ± standard deviation and qualitative variables as percentages.

RESULTS

During the study period, we sent the questionnaire to 150 general practitioners and specialists. One hundred and six (106) doctors responded to the questionnaire, of which five (5) were unusable. The average age of the doctors was 34.6 years (± 6.1), with a predominance of males (79.2%) and a sex ratio of 3.8.

General practitioners accounted for 66.3% and non-nephrologist specialists accounted for 33.7%.

Physicians who had been practicing for less than five years accounted for 56.4%. Physicians practicing in the public sector accounted for 82.2%, while 17.8% of physicians practiced in the private sector.

Physicians reported difficulties in defining CKD in 74.2% of cases. Those who systematically performed a urine strip test to screen for MR accounted for 69.3%.

The serum urea-creatinine ratio was used by 66.3% of doctors to assess renal function, and 7.9% of doctors believed that estimating GFR was the appropriate way to assess renal function.

Physicians used the Cockroft-Gault formula to estimate GFR in 46.5% of cases and the MDRD formula in 33% of cases.

Nephroprotective antihypertensive drugs, angiotensin-converting enzyme inhibitors, were prescribed by 75.2% of physicians in cases of kidney damage, and angiotensin II receptor blockers (ARBs) were prescribed in 39.6% of cases.

The circumstances surrounding the detection of CKD were dominated by high blood pressure, oligoanuria, and lower limb edema for 80.2% of physicians.

The number of doctors who treated and monitored patients suffering from CKD was 61.0%.

According to the relationship between non-nephrologist doctors and nephrologists, doctors who had a nephrologist among their regular contacts accounted for 42.6%. Doctors who referred their patients to a nephrologist accounted for 98%. The difficulties associated with referring patients to a nephrologist were long waiting times for appointments (28.7%), followed by patients' financial difficulties in 20.7% of cases.

The number of physicians who referred patients to nephrologists based on abnormal urine dipstick results, including persistent significant proteinuria, accounted for 63.4%, and based on glomerular filtration rate (GFR) thresholds starting at stage 3B (6.9%).

Distribution according to complications requiring referral to a nephrologist by a non-nephrologist (**Table I**)

Table I. Distribution according to complications

Complications / indication for dialysis	Number	Percentage (%)
Anuria	80	79,2
Uremic syndrome	73	72,3
Hyperkalemia	49	48,5
Uncontrolled hypertension	49	48,5
Acute Pulmonary edema	48	47,5
Metabolic Acidosis	44	43,6
Incidental finding	41	40,6
Anemia	33	32,7

Doctors received feedback from the nephrologist on referrals in 57.4% of cases. According to the methods used to refer patients to the nephrologist, 30.3% of doctors referred patients with a referral letter addressed to the nephrologist, while 52.2% of doctors referred patients without clearly defined criteria that could be used to guide the nephrologist.

For continuing medical education (CME), 28.7% of non-

nephrologist physicians had participated in CME on CKD. Ninety-eight percent (98%) of physicians wanted a guide on CKD that they could refer to in order to better care for their patients.

DISCUSSION

In our series, the subjects were 106 non-nephrologist physicians (general practitioners and specialists). The average age of the physicians was 34.6 years (± 6.1) with extremes of 25 and 57 years, and the age group between 30 and 40 years accounted for 69.3%. Our results are comparable to those found by Amare D. et al. in Jimma (Ethiopia) in 2018, who found an average age of 29.68±4.8 years [6].

On the other hand, this range is lower than two results, notably those of Khadija M. in Marrakech (Morocco) in 2015, whose most represented age group was 40-50 years [7], and Frimat L. et al (France) in 2006, who found an average age of over 50 years [8], with 60% and 47% respectively. The young age of the doctors in our series reflects the youth of the Chadian population.

The predominant sex was male, accounting for 79.2% with sex ratio at 3.8; this is higher than data from other authors such as Amare D. et al in Jimma (Ethiopia) in 2018 [6] and Choukem et Coll in Cameroon in 2013 [9] who had reported 69.6% and 67.5% respectively.

Concerning the concept of CKD, we asked about the definition of CKD, 25.74% of non-nephrologists answered correctly. Our result is lower than those obtained by Hamdi et al. in Oudja (Morocco) in 2015 [10] and Choukem et al. [9], who reported 98.6% and 58.8% respectively. In our context of limited numbers of nephrologists, most patients with CKD are seen by non-nephrologists. Low knowledge of CKD would imply that these patients are not properly managed to delay progression to end-stage CKD. This low level of knowledge among the doctors in our study reflects a lack of training on the subject.

The marker most often used to assess renal function is the uremia-creatinemia pair. Physicians claim to request serum creatinine in order to estimate their patients' GFR in 7.9% of cases. The latter result is lower than the data of Choukem et al. in Cameroon in 2013 [9], who reported 61.4%. This situation could be explained by a lack of training in CKD and the youth of nephrology in our country.

The majority of doctors calculate GFR using the Cockroft-Gault method, with a rate of 46.7%, compared with 32.7% of doctors who use the MDRD method; the latter being the most recommended in our country. This result is lower than those found by Hamdi et al [10] in Morocco in 2016 and Frimat L.et al [8] in France in 2006, who reported respectively 78.6% and 44% of doctors using the MDRD.

This could be explained by a lack of accessibility to recent medical recommendations in our country.

For 80.2% of physicians, hypertension, oligo-anuria and OMI are the main circumstances for screening for CKD. Diabetes was mentioned by only 49.5% of physicians. Our results differ from those reported by Choukem et al. in Cameroon in 2013, in whom diabetes and hypertension were mentioned in 95.6% and 97.4% of cases respectively.

Amare D.et al. in Jimma (Ethiopia) in 2018 reported that 91.4% of GPs were aware that diabetes and hypertension were possible risk factors for CKD [6].

Diabetes and hypertension are well known as major risk factors for CKD, and the focus is on targeting these high-risk groups for screening [9].

The American Diabetes Association and the KDOQI Task Force recommend that diabetic patients be screened annually for diabetic kidney disease [11]. Initial screening should begin 5 years after diagnosis of type 1 diabetes and at the time of diagnosis of type 2 diabetes. However, in our series, while hypertension is recognized as a risk factor for CKD by physicians, diabetes is far from alarming them.

This could be explained by a lack of knowledge about diabetes and its complications, as well as about CKD, its risk factors and aggravating factors.

In our study, less than half the doctors surveyed (42.6%) had a nephrologist to whom they referred their patients if necessary. However, referral is not without complications: 28.71% of doctors have difficulty referring patients to a nephrologist. Because of the long delay in appointments, 20.79% cited patients' financial difficulties, while 15.8% of doctors said they had difficulty communicating and coordinating with their nephrologist. Our results differ from those reported by Frimat L.et al [8] in Lorraine (France) in 2006, where 95% of GPs had a regular correspondent among their contacts; but these GPs found it difficult to contact the nephrologist in 41% of cases. 30% of doctors explained that this was because of the time it took to obtain an appointment, and 11% complained of their isolation. Nevertheless, access to a nephrologist in Lorraine seems relatively satisfactory, given the presence of the NEPHROLOR network: this is a care network set up in June 2002, whose main objective is to coordinate care for patients with CKD [7]. In Chad, there are just 5 nephrologists for the entire country. This very inadequate number is a limiting factor for non-nephrologists in their decision to refer patients [12]. Our survey reinforces the need for coordinated management of CKD. Taken together, these results should represent an important tool for the subsequent launch of a nephrology health network in Chad.

In our series, 28.71% of the doctors surveyed had undergone continuing medical education.

Our result is lower than that reported by Frimat L.et al and Khadidja M, who found 43% and 60% respectively of GPs who attended a CME.

In Lorraine, France, the study showed a positive correlation

between CME attendance and CKD management by GPs, unlike the Moroccan study, where no such correlation was observed. In Chad, the number of doctors who had attended CME was superimposed on the number of doctors who had correctly defined CKD; however, doctors who had not attended CME had also given good answers. Given the low response rate, we can't say whether the impact of CME is positive.

The questionnaire in our study was answered by 106 non-nephrologists, of whom 91% would like to participate in the creation of a care network to improve the management of CKD, thus demonstrating their important role in the primary care of this disease; and 98% of our doctors would like to have a CKD registry to which they can refer to better manage their patients. That said, the importance of encouraging early contact with the nephrologist through the organization of seminars, the distribution of brochures and newsletters, and encouraging the participation of physicians in care networks dedicated to the screening and prevention of CKD, where they will play a leading role, is very important.

CONCLUSION

General practitioners and non-nephrological specialists lack general knowledge of CKD, particularly the definition; they also have inadequate attitudes to diagnosis and referral to nephrologists. Educational efforts are warranted to improve doctors' knowledge and skills about CKD in Chad. To this end, the organization of care within a structured network bringing together the various specialties concerned (cardiologist, endocrinologist, etc.) would appear to be an efficient solution.

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