



Original Article

Knowledge, Attitudes and Practices of Health Personnel Caring for Kidney Disease in Zinder

Knowledge, Attitudes and Practices of Health Personnel Caring for Kidney Disease in Zinder

Hassane Moussa Diongole^{1,2}, Zeinabou Maiga Moussa Tondi^{3,4}, AbdoulAziz Garba^{1,2}, Illiassou Aboubacar⁴, Ousmane Ibrahim², Bonkano Djibril⁴, Lionel Rostaing^{5,6}

ABSTRACT

Introduction. A second nephrology center (after the one in Niamey) was inaugurated in Zinder, Niger, in 2012 to facilitate treatments for kidney diseases. However, several problems have arisen regarding the organization of the center and the care of patients. The article aims to report the knowledge, attitudes, and practices of health personnel treating kidney disease in Zinder. **Materials and methods.** This study took place in public-health facilities within the Region of Zinder, including district hospitals, a mother- and child-health center, and the National Hospital of Zinder. This cross-sectional study describes and analyses activities from October 1--31st, 2018. Medically trained participants were selected. 6% Six per cent of them were doctors and 94% were state-certified nurses and midwives. **Results.** Our sample is composed of 150 agents. Women represented 72% of the sample (84% were nurses). 31% learnt about kidney disease via the internet. 96% had poor knowledge of treating kidney failure. Bad practices and inappropriate attitudes towards renal insufficiency were noted in 98% of the cases. There was a correlation between profession and knowledge ($p < 0.05$) and between experience and knowledge ($p < 0.04$). Only 2% of those surveyed provided satisfactory answers on the attitudes and practices used for kidney failure. **Conclusion.** We found poor knowledge, attitudes, and practices regarding treatment of renal failure among health workers in Zinder. Hence, ongoing training should be initiated to improve knowledge about kidney disease.

1. Faculty of Health Sciences, University of Zinder, Niger
2. National Hospital of Zinder, Niger
3. Faculty of Health Sciences, University Abdou Moumouni
4. Amirou Boubacar Diallo National Hospital
5. Nephrology, Hemodialysis, Apheresis and Kidney Transplantation department, University Teaching, Hospital Grenoble-Alpes, Grenoble, France
6. University Grenoble Alpes, Grenoble, France

Corresponding author:

Dr Hassane Moussa DIONGOLE
Nephrology Department, National Hospital of Zinder, 656, Niger
Phone: +22790507001
Email: diongolen@yahoo.fr

Keywords: kidney failure, health workers, KAP study, Zinder

Mots clés : insuffisance rénale, agents de santé, Zinder.

RÉSUMÉ

Introduction. Au Niger, un deuxième centre de néphrologie a été inauguré à Zinder en vue de faciliter l'accessibilité de la prise en charge des maladies rénales. Plusieurs problèmes ont été relevés tant sur le plan du fonctionnement du centre que lors de la prise en charge des patients. L'objectif du travail était d'étudier les connaissances, les attitudes et les pratiques du personnel de santé de la région de Zinder sur l'insuffisance rénale. **Matériels et méthodes.** Cette étude s'est déroulée dans les structures sanitaires publiques de la région de Zinder, notamment les hôpitaux de district, le Centre Santé Mère et Enfant et l'Hôpital National de Zinder. Il s'agit d'une étude transversale à visée descriptive et analytique d'une durée d'un mois allant du 1^{er} au 31 octobre 2018. La sélection a été faite sur la base du poids démographique par catégorie socio-professionnelle (6% des médecins, 94% des infirmiers diplômés d'état et sage-femmes). **Résultats.** Notre échantillon était composé de 150 agents. Les femmes représentent 72% de l'échantillon et 84% des enquêtés étaient des infirmiers. Seulement 31% des agents s'informent sur les maladies rénales via l'internet. 96% avaient une mauvaise connaissance sur l'insuffisance rénale. Une mauvaise pratique et une attitude inappropriée vis-à-vis de l'insuffisance rénale étaient notées chez 98%. Il y avait une corrélation entre la profession et la connaissance ($p < 0.05$), entre l'expérience et la connaissance ($p < 0.04$). Seulement 2 % des agents enquêtés ont donné des réponses satisfaisantes sur l'attitude et les pratiques sur l'insuffisance rénale. **Conclusion.** Notre étude a montré une mauvaise connaissance et une mauvaise attitude et pratique de l'insuffisance rénale chez les agents de santé de la région de Zinder. D'où la nécessité d'initier une formation continue pour que ces agents puissent jouer un rôle dans la prévention de ce fléau.

INTRODUCTION

Kidney disease is defined as deteriorating renal function, which can be acute or chronic. Kidney impairment is a serious health problem, particularly in countries with limited resources. It is estimated that approximately 850

million people worldwide have chronic renal insufficiency and there are 13 million cases of acute kidney injury (AKI) per year, of which 2 million lead to death [1]. In our center, during the second quarter of 2018, the prevalence of chronic kidney disease (CKD) was 6 %

[2]. The Nephrology Department of Zinder recorded that, over the last 5 years, 55.3% of renal-disease cases were caused by AKI. About 65% of our patients are referred by health authorities within Zinder area.

Several problems were noted in terms of the center's organization and the care of patients. Because our center deals with late referrals, theoretically, more than 80% of cases of AKI can be managed in regional centers without a specialist. In addition, urinary dipsticks are seldom utilized. It is also difficult to manage patients that need scheduled or emergency surgery if they present with renal insufficiency (RI), thus leading to deferrals.

However, nowadays, AKI is a hot topic as the International Federation of Human Rights and the International Society of Nephrology have joined forces to propose that no-one worldwide should die of AKI by 2025 [3]. To achieve this, health workers must be educated and equipped with prevention techniques including being able to screen for kidney disease.

Thus, we studied the knowledge, attitudes, and practices of health personnel treating RI in two nephrology centers in Zinder. This is how we decided to carry out a KAP survey, an essential tool for improving health indicators [4]. The results will be used to initiate a project to strengthen the capacities of health personnel, particularly in the context of the diagnosis and management of AKI and in the screening of CKD. This study will also serve as a reference to assess achievements after each intervention.

POPULATION AND METHODS

This cross-sectional descriptive study lasted one month (October 1--31st, 2018). The study participants consisted of health personnel (doctors, nurses, midwives) working in the six former health districts of the Zinder region (Matameye, Mirriah, Magaria, Goure, Tanout and the city of Zinder). Health personnel were from these six former district hospitals, and also the mother- and child-health center (CSME), and the national hospital of Zinder. (HNZ) All participants gave their written consent to participate in this study. They were selected according to demographic and socio-professional categories. Thus, based on the 2015 Statistical Directory of Health Indicators, 6% were doctors, and 94% were state-certified nurses and midwives.

Data were collected from a printed questionnaire (see appendix 1). Data entry was carried out using Epi-Data software and statistical analyses were done using Epi info 3.1.1. and the appropriate statistical methods.

To facilitate the study, the following operational definitions were applied.

- Acute renal failure was defined as rapid deterioration of glomerular-filtration rate -GFR- (renal function) though a potentially reversible increase in serum creatinine.
- Chronic renal failure was defined as a reduction in functional renal mass, resulting in permanent reduction (for at least 3 months) of GFR of less than 60 mL/min/1.73 m². There is irreversible reduction in the number of functioning nephrons.
- Urine dipsticks are valuable tools in primary-care medicine. They enable simple and rapid analysis of

specific urinary parameters, and so can provide topographic information on kidney disease.

- Extra-renal purification: i.e., hemodialysis and peritoneal dialysis, can supplement the kidneys if they can no longer function in cases of advanced renal insufficiency.

We collected means, proportions, rates, and ratios on the different knowledge, attitudes, and practice (KAP) variables and on socio-demographic characteristics. The level of each participant's knowledge was scored. A mark of 1 was attributed to each correct answer, a mark of 0 for each incorrect answer. Thus, a health worker was considered to have good knowledge if they scored 60% or above. The same approach was used for 'attitude' and 'practice'.

Comparisons were made using a chi-square test with a significance level of 5%.

RESULTS

Median age of the participants was 35 years (interquartile range 30--42 years). Women represented 72% of the sample, 84% of respondents were nurses. Of the participants, 31% obtained medical information on kidney diseases via the internet; 96% had poor knowledge on kidney diseases and renal failure. Only 2% of those surveyed gave satisfactory answers on the attitudes and approaches to treating renal failure. Sixty-four percent of participants had a <20 score on knowledge of kidney diseases [Table 1].

Tableau 1 Summary of responses to the questionnaire-answer on knowledge

Questions Knowledge (n=150)	N		(%)	
	Yes	No	Yes	No
Training received on kidney disease	29	121	19,33	80,67
Three main roles of the kidney	9	141	6	94
Definition of nephrology	48	102	32	68
Definition of kidney disease	3	147	3	98
Definition of chronic kidney disease	1	149	0,67	99,33
What are the three main etiologies of Kidney disease	32	128	14,67	85,33
How to estimate the flow rate of the GF	1	149	0,67	99,33
How many types of kidney disease	70	80	46,67	53,33
Three clinical signs of kidney disease	33	117	22	78

Among the doctors, 40% had good knowledge of kidney diseases. Among the agents who followed training, the majority have bad practices (89%) [Table 2].



Table 2: Distribution of participants according to response score on knowledge of kidney disease.

Score (points)	Number of health workers	(%)
Less than 20	96	64.0
20--29	42	28
30--39	5	3.3
40--49	1	0.67
50--59	0	0.0
>60	6	4.0
Total	150	100

DISCUSSION

the main limit of our study is related to the difference in level of the respondents.

In our study, 46% of participants were aged between 30 and 40 years. Overall, our results are similar to those found by Sabi et al. [5] where the average age was 38 years. On the other hand, this range is lower than two studies, in particular that of Khadija et al. [6] and that of Frimat et al who had found an average age greater than 50 years respectively with 60% and 47% [7]. These results could be explained by a large proportion of young people in our population.

In our study, female gender represented 72% of the participants. Our results are different from those of Sabi et al. [5]. where the female gender represented only 24%. This difference could be explained by the fact that, in Niger, increasing numbers of women are entering the paramedical profession.

In our study, most participants were paramedics (93%); doctors made up 4%. Our sample is comparable to that of Sabi et al. [5] where all respondents (n=152) were paramedics (senior care technicians). However, our results are different from those of Khadija et al. in Morocco [6] and Frimat et al. in France [7]. This could be explained by the health system which is very developed in France and Morocco who have a large number of general practitioners.

In our study, 96% of respondents had poor knowledge on how to diagnose or treat kidney failure. In contrast, Frimat et al. [7] and Khadija et al. [6] reported low levels of knowledge in only, respectively, 30% and 28% of professionals. This difference could be because our participants were mainly paramedics and because of the short time nephrology has been developed in Niger. The first nephrologist in Niger began work in 1987, and it has been taught in medical schools for less than 10 years and, then, only to senior nursing technicians. There was therefore a correlation between profession and knowledge ($p<0.05$): doctors had a higher level of knowledge compared to paramedics. There was also a correlation between experience and knowledge ($p<0.04$) but no correlation between seniority and knowledge.

In our study, 94% of respondents could not name three main roles of the kidney. Only 1% knew how to estimate the glomerular-filtration rate. The majority (99%) did not know the definition of CKD.

Also, most respondents did not know the main etiologies for RI. Only 1% of respondents knew that a urine dipstick should be requested in the event of diabetes or hypertension. This was a significantly different finding to

Frimat et al. [7], and Khadija et al. [6], who reported that a urine dipstick was requested in >90% of cases in the presence of these two pathologies.

Most (98%) of our respondents did not know what to do in the event of kidney failure. Conversely, Khadija et al. [6] reported that 79% know what to do in kidney failure. This may be because most of our respondents were paramedics, whereas those of Khadija et al. [6] were general practitioners, with the majority having completed or continuing medical training. But in Togo Mawufemo Y Tsevi found only 6% of general practitioners receiving a continuing education on CKD [8].

CONCLUSION

This study reveals a severe lack of knowledge on kidney-disease management. Bad attitudes and poor practices were rife when medical staff were faced with cases of renal failure. In order to improve the health of patients with kidney disease in the region of Zinder, it is necessary to review the curricula in the paramedical training schools and the continuing education for the medical and paramedical personnels.

REFERENCES

1. Bello AK, Levin A, Lunney M, Osman MA, Ye F, et al. (2019). Global Kidney Health Atlas: A report by the International Society of Nephrology on the Global Burden of End-stage Kidney Disease and Capacity for Kidney Replacement Therapy and Conservative Care across World Countries and Regions. International Society of Nephrology, Brussels, Belgium.
2. Moussa Tondi ZM. Particularity of severe chronic kidney disease in hospitalized patients in the Nephrology Department of Zinder Hospital (Niger), one year after starting renal replacement therapy. *Kidney Int Reports*. 2020;5:S48.
3. Mehta RL, Cerdá J, Burdmann EA, et al. International Society of Nephrology's 0by25 initiative for acute kidney injury (zero preventable deaths by 2025): a human rights case for nephrology. *Lancet*. 2015 Jun 27;385(9987):2616-43. doi: 10.1016/S0140-6736(15)60126-X. Epub 2015 Mar 13. PMID: 25777661
4. Essi, M.-J., & NJOYA, O. (2013). L'enquête CAP en recherche médicale. *HEALTH SCIENCES AND DISEASE*, 14(2). Retrieved from <http://hsd-fmsb.org/index.php/hsd/article/view/18>
5. Sabi KA, B'Noto AK Amekoudi E, Vigan J, Gbotcho A, Kossidze K, et al. Evaluation of the level of knowledge of senior health technicians (TSS) in preventive nephrology: national survey of 152 senior health technicians in Togo. *Journal de la recherche Scientifique de l'Université de Lomé*. 2016 ;18(4) series B,D,E: 427-433.
6. Mazouz K. Chronic renal failure: knowledge and perception by general practitioners in the Marrakech delegation. Doctorate Thesis in Medicine. Marrakesh. University name, Cadi Ayyad. Faculty of Health Sciences. Marrakech (Maroc). 2015. No. 110. 94 pp. these 110-15.pdf (uca.ma).
7. Frimat L, Siewe G, Loos-Ayav C et al. Insuffisance rénale chronique : connaissances et perception par les médecins généralistes. *Néphrologie et Thérapeutique*. Vol 2 - N° 3 - juillet 2006,P. 111-163.
8. Tsevi MY, Tia MW, Sabi AK, Konan DS. General practitioners' knowledge and perception of chronic kidney disease diagnosis and treatment in Lomé (Togo). *J Nephrol*. 2022 Mar 7. doi: 10.1007/s40620-022-01293-1. Online ahead of print.

APPENDIX 1:

Scorecard:

General data

Number:

Gender:

Age:

Grade:

Health Structure: Seniority in the body:

Internet use: Yes No

• Open questions

Did you receive training on kidney disease during your course: Yes No

1/ Name three main roles of the kidney:

.....

2/ Definition of Nephrology:

.....

3/ Definition of kidney failure:

.....

4/ There are how many types of kidney failure:

.....

5/ Name three main etiologies of kidney failure that you know:

.....

6/ How to estimate glomerular filtration rate (GFR):

.....

7/ Give three clinical signs pointing to kidney failure:

.....

8/ Should we look for in case of kidney failure:

Dehydration Yes No Hypertension Yes No Edema Yes No

9/ Justify your answers:

.....

.....

10/ What are the means of diagnosing kidney failure that you know:

.....

.....

11/ What are the therapeutic means used to treat kidney failure:

.....

.....

12/ Name some preventive measures to avoid kidney failure:

.....

.....

13/ Can an kidney failure be cured: Yes No

14/ Justify your answer:

.....

.....

15/ Name the treatment centers for renal insufficiency:

.....

.....

16/ Cite the hygiene and dietary measures in case of kidney failure:

.....

.....

17/ What is the usefulness of the urine dipstick in case of kidney failure:

.....

.....