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Knowledge and Skill Assessment of Congolese Traditional Healers on Healthy and Diseased Kidney

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Abstract

Background: Kidney disease is now recognized as a public health problem worldwide, particularly in Africa [1] with the increasing prevalence of kidney disease observed in African countries, it is likely that it has the share of medicinal plants. Cultural and economic reasons explain the use of traditional healers.

Objectives: This study assessed the knowledge and the skill of traditional healers concerning the healthy and diseased kidney.

Methods: In this cross-sectional study, a sample of 2654 traditional healers were enlisted from Tshangu, Mont Amba, Funa and Lukunga, district of Kinshasa, from August 2013 to March 2014. An ad hoc questionnaire was used. Logistic regression analysis was used to identify factors associated with healer's knowledge and skill about the healthy and diseased kidney.

Results: The majority of the participants have recognized the kidneys as an anatomical organ and could translate it in Congolese languages; a small number could localize it in the human body and able to determine its functions.

Almost half of them are unaware of the presence of kidneys in women.

Back pain, miction disturbances, infertility, abdominal pain have been reported as a symptom of kidney disease. Revelation, symptoms of the disease, the use of traditional equipment, light microscope, laboratory and imagery reports, saliva and traditional rituals the diagnostic means used

Traditional healers have used aloe vera and *Zingiber* more often to treat renal diseases.

High level of education of traditional healers emerged as the sole factor independently associated to the knowledge of kidney disease.

Conclusion: The traditional healers have limited knowledge of the healthy and diseased kidney. The holistic approach involving education program, fundamental research, regulation of the traditional practice and its integration in the organized health system will ultimately reduce the global burden of nephrotoxicity induced by medicinal plants.

Keywords: Traditional Healers; Knowledge; Skill; Kidney; DR Congo

Introduction

Since remote time, people around the world always sorted the traditional means, mostly herbal medicines, to face medical problems. Nowadays, the propensity of the populations towards the traditional medicine is variable according societies. This trend is based on sociocultural and economic considerations among which, the belief of safety attached to everything considered as Natural, the availability and the affordability.

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The putative safety of these natural plants is very relative; indeed, our ancestries have used some species of plants for a harmful purpose such as poisoning. Moreover, nearly 3 decades ago, an epidemic of interstitial nephritis leading to End Stage Renal Disease (ESRD) was reported in Europa among persons exposed to Chinese laxative products adulterated caused by Aristolochic acid [2]. Some other reports from South Africa have documented cases of acute renal failure induced by Callilepsis [3,5].

Because of its anatomical, hemodynamic and functional specificities aimed to achieve a high blood perfusion and a huge cortico-medullar osmotic gradient necessary for both glomerular filtration and urine concentration, the kidney is very vulnerable to toxic effects of exogenous substances. In this regard, the nephrotoxicity related to herbal medicines may contribute to the ever growing burden of kidney diseases as reported in some African countries [5,6], where nearly 80% of the populations are treated with herbal medicines before attending healthcare facilities [7-10]. Furthermore, sometimes ESRD patients seen in healthcare system who can't afford dialysis for financial reasons hope to find their salvation with traditional healers. Therefore, traditional healers (TH) appear as an important interface for the community as well as the healthcare system and should be considered as one of the main stakeholders in health policy development and implementation. The involvement of TH in health system implies the assessment of their knowledge, attitude and practice about current diseases in a perspective of the development of a targeted training program. Unfortunately, when looking on TH advertising register magnifying their skills to treat common diseases within the community, there is usually no information about the kidney and kidney disease with the risk of delivering non-secured potentially nephrotoxic medicinal plants to their patients. It appears urgent to assess the knowledge and skills of traditional healers about the healthy and diseased kidney in the Congolese society at Kinshasa in view to strengthen their capacity for the diagnostic and management of kidney diseases.

Methods

A cross sectional study was conducted on an exhaustive sample of 2654 traditional healers registered during the census organized between August 2013 and March 2014 by the Ministry of Public Health in collaboration with WHO Agency at Kinshasa. The participants originated from 4 districts (Tshangu, Mont Amba, Funa and Lukunga) that count Kinshasa, the capital City. Only the traditional healers who fulfilled the criteria fixed by the ministry of Health as part of their recognition of this quality were recruited for the study. These criteria included a minimum of 2 years of practice, an identified office, a certificate delivered by the Ministry after training on traditional medicine. The ad hoc questionnaire used in this work was conceived on the basis of informations previously collected on traditional healers, the Statistic Engineering Consulting Firm for the Development and the Democracy (STADDE) elaborated a basic questionnaire on demographic, socioprofessional data, which was completed by us with additional informations on the healthy and diseased kidney.

All the interviewers were first of all trained about the work and conducted all the interview in two languages (French and Lingala) with a lasted time of 45 minutes for each interview. In order to avoid the phenomenon of "click through" both questions on a Likert scale and open ended were used.

Statistical analyses

Data were analyzed using SPSS 16.0 software. Quantitative variables are expressed as means with SD and qualitative variables in proportions (percentage). The results are presented in tabular form and figures. Student's T test and Chi-square test were used to compare the means and the percentages, respectively. The logistic regression was conducted to examine the association between the profile of the traditional healers and their knowledge and skill on healthy and diseased kidney. P value for statistically significant was fixed at < 0.05 .

Ethics approval and consent to participate

Ethical approval was obtained from the National Committee of Ethics of the health (N°IORG0008558/IRB). All the participants gave their free and oral consent after being informed in the national language the most spoken in Kinshasa (Lingala) and French about the

study.

Results

General characteristics of the study population

Two thousand six hundred and fifty-four traditional healers were listed in the national registry of census of the traditional healers of Congo (RECTRADI). We noted 891 (33.57%) TH from Tshangu, 660 (24.60%) TH from the Mont Amba, 655 (24.87%) TH from Funa and 448 (16.88%) from Lukunga (Figure 1). All the traditional healers (2654 TH) were interviewed, yielding a response rate of 100%.

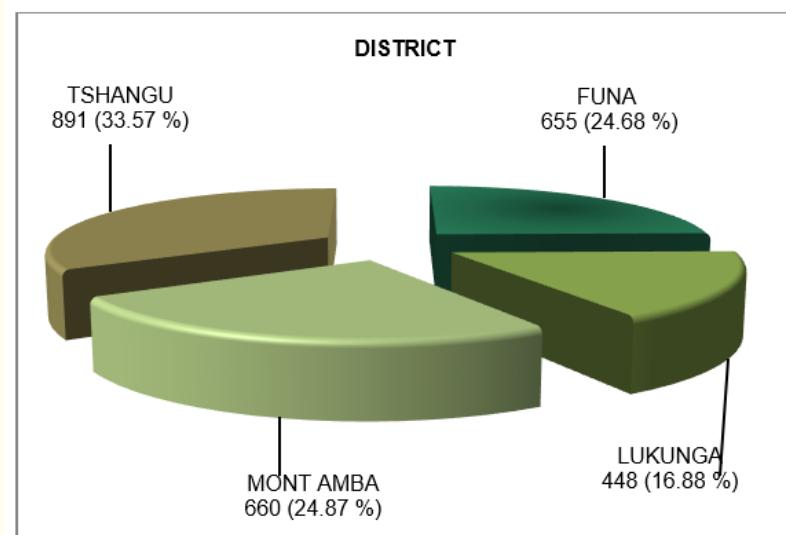


Figure 1: Number of traditional healers.

General characteristics of the TH are presented in the table 1. There was a male predominance (53.88%; $p < 0.001$) with an average age of 51 years. The mean duration of practice as traditional healer was 10 years. Eighty-six percent (86%) of traditional healers were educated, among them 13% had received post-secondary level of education. More than 90% pursued additional professional activities, like business, pastoral, agriculture and public administration.

Variable	n (%)	P value
Total population	2654	< 0.001
Men	1430 (53.88)	
Woman	1224 (46.08)	
Mean age (\pm SD)	50.9 \pm 10.5	
Age range (years)	35 - 79	
Other activity conducted by the traditional healers		
Business	514 (19.37)	
Pastoral	320 (12.06)	
Agricultural	477 (17.97)	
Breeding	146 (5.5)	
No activity	177 (6.67)	
Public administration	199 (7.49)	
Not specified	821 (30.93)	

Education level			
No formal education		363 (13.66)	
Primary school		650 (24.49)	
Secondary school		1304 (49.13)	
Higher education		337 (12.69)	
The duration of apprenticeship/training (years)		5 - 42	
Knowledge of the kidney			
Yes		1769 (66.65)	
No		885 (33.34)	
Existence of kidney in woman			
Yes		532 (20)	
No		1437 (54)	
No response		685 (26)	
Existence of kidney in man			
Yes		2654 (100)	
No		0 (0)	
Knowledge of the really localization and role		100 (4)	

Table 1: Characteristics of traditional healers interviewed. $(\%) = \% SD, standard deviation.$

Knowledge of the kidney

The kidney as an anatomical organ was well recognized by 1769 participants (67%) who knew its correct appellation in the Congolese language. Nevertheless, just 100 of them (4%) were able to localize the kidney within the human body, and only 30 participants (1%) reported the main functions of the kidneys (blood purification). One third (1/3) of all participants showed no knowledge on the kidney. The presence of the kidney in women was ignored by 1437 (54%) participants.

Skills about the kidney diseases

Symptoms of the kidney disease

The symptoms are presented in figure 2. In which 54% of TH attributed Back pain as common symptoms of kidney disease, 20% for miction disturbances, 10% for infertility and only 7% attributed abdominal pain as common symptoms attributed to the kidney disease. No specific symptoms have been noted in 9% of responders.

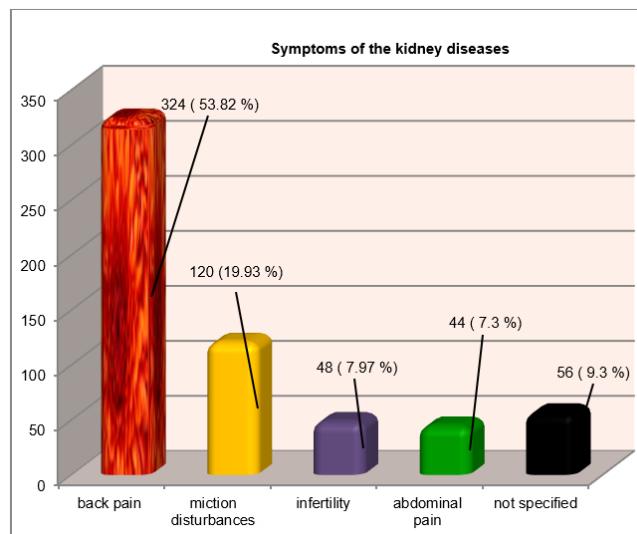


Figure 2: Symptoms of the kidney diseases.

Diagnostic tools

Spiritual revelation, clinical manifestations of the disease, traditional equipment abusively qualified as scanner were the most used tools for diagnostic, which representing 26%; 23% and 20%, respectively. Nearly 12% of TH sorted modern equipment like light microscope, laboratory and imagery were sorted by 8% of participants. Others used saliva and traditional rituals to diagnose the kidney disease (Figure 3).

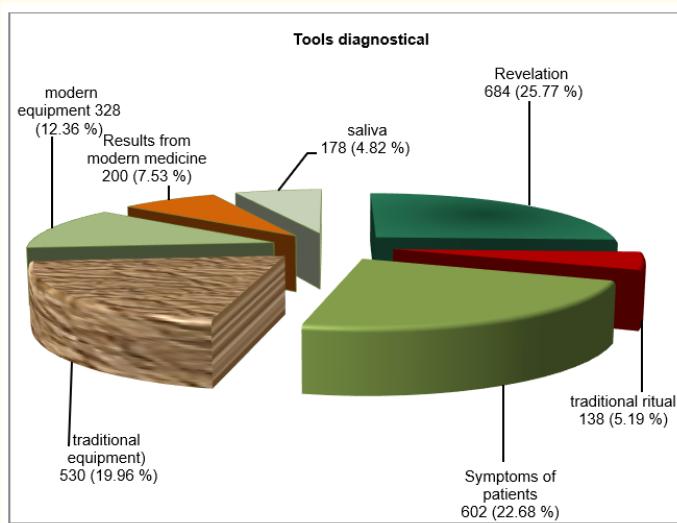


Figure 3: Tools diagnostics.

Medicinal plants used for treatment of kidney diseases

Various products were identified to treat the kidney diseases as show in figure 4. The most currently used medicine was *Aloe vera* (26.48%), followed by *Zingiber officinalis* (25.99%).

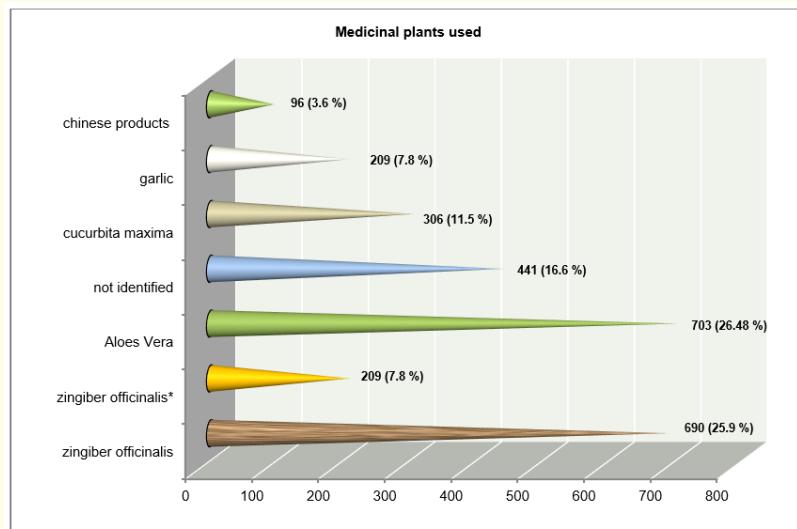


Figure 4: Medicinal plants used for treatment of kidney diseases.

*= The mixture of *Zingiber officinalis** with others not specified compounds.

The mixture of *Zingiber officinalis** with others not specified compounds (7.87%), while *Cucurbita maxima* where recorded at 11.52%, Garlic at 7.87%, Chinese herbal products at 3.61% and miscellaneous not identified products 16.61%.

Factors associated with knowledge of the kidney disease among traditional healers

Factors associated with knowledge of kidney disease in the univariate analysis were male gender (OR 1.62; IC 95%: 1.06 - 2.45, $p = 0.025$) and high level of education (OR 8.36, 95% CI: 3.81 - 12.11, $p < 0.001$).

In multivariate logistic regression, only the high level of education was independently associated with the knowledge of kidney among traditional healers (ORa 7.93, 95% CI: 2.79 - 10.44, $p < 0.001$) (Table 2).

Variables	n	Knowledge n (%)	p	OR (95 % IC)	p	ORa (95 % IC)
Sex						
Woman	1223	35 (2.9)		1		1
Men	1431	65 (4.5)	0.025	1.62 (1.06 - 2.45)	0.069	1.56 (0.97 - 2.53)
Province of origin						
Westem part of the country	2552	95 (3.7)		1		
East part of the country	102	5 (4.9)	0.541	1.33 (0.53 - 3.35)	-	-
Education level						
Low	2318	2 (0.1)		1		1
High	336	98 (29.2)	< 0.001	8.36 (3.81 - 12.11)	< 0.001	7.93 (2.79 - 10.44)
Constant			-	-	0.018	0.000

Table 2: Factors associated with knowledge of kidney disease among traditional healers.

Discussion

To our knowledge there is only a single paper from sub-Saharan Africa (Burkina Faso) which studied the practice of TH in the kidney disease [8].

The present study coincided with the launch of the Census of Traditional Healers in Kinshasa. This event represented an opportunity to realize such a study in DRC, considering the usual attitude of mistrust and reluctance of TH towards all foreign persons to their practice.

The demographic characteristics of our sample were similar to those described by Legani., *et al* [8]. The male predominance has also been reported by other African authors [11]. This gender difference may reflect the role of housework which is attributed to the woman in some African societies. The majority of traditional healers have an appreciable level of education and had a long professional experience in their practice. As is the case for other professions work in DRC, most of TH carried out some additional activities to get enough incomes.

Nearly 70% of the TH showed a good level of the knowledge of the kidney as an anatomical organ and its appellation in the local languages. This can easily be explained in view of their appreciable level of education. But on the other hand, the extremely low rate of those who could locate and mostly know the kidney function is simply a disappointing observation in the face of sensitization effort undertaken since more than a decade by the Congolese Society of Nephrology "Soconeph" and by the Congolese Association of Persons with kidney disease "ACPAMAR". In Burkina Faso, Legani., *et al*. reported similar observation [8].

The course of the chronic kidney disease is usually asymptomatic in which the diagnosis is currently based on biological indicators of the structure abnormalities (proteinuria, hematuria, etc.) and function (elevated serum creatinine and urea), derived from urine or blood respectively. The putative symptoms of kidney disease reported in this study can be explained by the misunderstanding and confusion made by TH between the kidney and the loins as the source of procreation. In the other hand, the diagnostic tools used by TH to diagnose diseased kidney are totally inappropriate. The fact that the spiritual revelation was mentioned as the most used tools of diagnosis seems very strange according to the current rational approach in the modern medicine practice. But in many African traditions, a sickness is usually a consequence of bad curse [12]. Some TH being aware of the weakness of traditional tools of diagnosis tried to incorporate the modern tools like the light microscope and the laboratory test.

Notwithstanding all these shortcomings, our conviction remains that a close partnership between TH and the medical practitioners should be developed within a multisectoral approach, which will associate TH on the management of medical problems depending to the case. According to our opinion, traditional knowledge of TH could bring significant contribution in modern medicine. Such a collaboration has been reported in the HIV management [13,14].

Aloe vera, Zingiber officinalis, Cucurbita maximum, Garlic and Chinese herbal products were mentioned among the quoted plants used in the treatment of diseased kidney. Aloes species inducing Acute Kidney Injury (AKI) has been reported in South Africa [14]. Unpublished data collected by the Unit of Nephrology of Kinshasa in 2006 reported some cases of acute kidney injury among persons exposed to Chinese and American plants delivered by some TH. A noteworthy observation, the herbal products found in Kinshasa are different to those reported by Legani., *et al*. (2010), reflecting regional or cultural differences [8]. In a study carried out in Morocco, 33 plants were identified in the treatment of kidney disease [15]; this high number of plants mean that both traditional healers and patients were interviewed. Conversely, the small number of plants found in the present study may suggest the reluctance of TH to share information. Indeed, in many Sub-Saharan populations, knowledge was not considered as a universal heritage to be shared, but an individual property which must be kept secret to establish a form of domination over others [12,16].

In our opinion, dealing with the problem of herbal medicines the main issues will be focused not only on the determination of their toxicity through fundamental research, but also to find some beneficial pharmacological properties of those herbal materials (anti pro-

teinuria, vasoactive, immunomodulation, etc.) that could treat biological abnormalities described in renal diseases. Finally, the identification of toxic plants and therefore the avoidance of their exposure may contribute to reduce the occurrence and ultimately the burden of kidney disease in the community.

Strengths and Limitations of the Present Study

The large number of healers officially recognized, the high rate of responses are the major strength of this study. Conversely there are some limitations, which include first of all, the representativeness of the interviewees which was based on their recognition by the Ministry of Public Health in collaboration with WHO Agency at Kinshasa, excluding out a lot of TH which may not meet the criteria set by the Ministry, and were therefore not interviewed. And secondly, this study where limited by some answers given about the practice of TH with lack sincerity because of their reluctance.

Conclusion

The Congolese traditional healers have demonstrated limited knowledge and skill on healthy and diseased kidney. The collaboration with modern medicine, typically medical practitioners in the field of nephrology with traditional healers is mandatory because of their especial position in the disease management process. Training of the traditional healers is therefore need, which can be designed on the basic knowledge of the normal kidneys, their common diseases found in the community, their usual manifestations as well as the means of diagnosis and the therapeutic possibilities in case of ESRD. Early referral of patients to nephrologist must be outlined. In the other hand, fundamental and clinical research on medicinal plants must be promoted, not only to search research harmful components, but also beneficial products.

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Part of this paper was presented in abstract form to 14eme congress of AFRAN/7eme congress 3eme congress of SOCANAPH, march 14-18, 2017, Yaoundé HILTON Hotel, Cameroun.

Supplementary Data

Investigation sheet (Table 3).

Investigation sheet	
Number	
Sex	Men woman
Age (years)	
Other activity conducted by the traditional healers	Business, Pastoral, Public administration, Agricultural, Breeding, No activity, Not specified
Education level	No formal education, Primary school, Secondary school, Higher education

The duration of apprenticeship/training (years)	
Do you know the kidney?	Yes/No (If yes what is its role and its localization?)
Do women have kidney?	Yes/No
What are the signs of kidney disease? Which are	Miction disturbances: anuria, polyuria, dysuria/ Back pain Infertility Troubles of stomach Others (to specify?)
What causes kidney diseases?	
What method do you use to diagnose kidney diseases?	Revelation Symptoms of patients Results from modern medicine Saliva Traditional rituals Others (to specify).
How do you treat kidney diseases? (If you use a plant please provide the name)	

Table 3: Investigation sheet.

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