VOLUME-6 | ISSUE-3 | MARCH - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

Level of Knowledge of Chronic Kidney Disease among Adult Patients at King Abdulaziz University Hospital

Nephrology

KEYWORDS: chronic kidney disease; awareness; knowledge.

Hanadi Alhozali	Nephrology Unit, Department of Internal Medicine, Faculty of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Ashar Almusallam	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Duaa Bakheet	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Eman Badawood	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Eulaf Alaada	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Heba Alturkistany	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Lujain Abdalwassie	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Mada Abdulhaq	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Majidah Alshammari	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Malak Alharbi	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Mawaddah Tallab	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Raghad Jamal Aldeen	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Razan Jabbad	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
Shaimaa Hawsawi	Department of Medicine, King Abdulaziz University Hospital, Jeddah, Saudi Arabia

ABSTRACT

Despite a worldwide increase in the prevalence of chronic kidney disease (CKD), the general population and CKD patients have a low level of awareness of the disease. This cross-sectional survey aimed to explore the level of knowledge among CKD and dialysis patients at King Abdulaziz University Hospital, Jeddah. Fifty-three patients completed the questionnaire. Patients had limited information on kidney function and the nature and management of CKD. Further, low educational level, unemployed status, marital status, and short duration of CKD influenced knowledge levels. There is an urgent need to educate the community and health providers about the asymptomatic nature of CKD and highlight the importance of regular nephrology care.

Introduction

Chronic diseases have a major impact on patients' lives and their performance in daily activities. It has been found that patients' involvement in their own care improves the clinical course of their disease and that the most important step to achieve this is to increase their understanding of the disease [1].

Chronic kidney disease (CKD) is one of the most common chronic and progressive diseases. The overall prevalence of CKD has been increasing over the last few decades worldwide and among the Saudi population. This increase has been associated with a rise in the incidence of other chronic medical conditions such as diabetes mellitus (DM), cardiovascular diseases, and obesity among adults [2].

According to a recent study, the overall prevalence of CKD in Saudi Arabia is 5.7%, with the awareness level among CKD patients reported to be only 7.1% [3]. Lack of awareness affects the quality of life of CKD patients. Since knowledge forms the cornerstone of awareness, lacking the important information regarding CKD, its preventive measures and the different management options, such as lifestyle modifications, medications, dialysis and renal replacement therapy, will eventually affect the patient's health and thus their quality of life. Another aspect is that the initial stages of CKD can be asymptomatic, making it difficult to detect the disease early, eventually leading to progression to terminal stages due to inadequate diagnosis and lack of treatment [4].

Increasing the level of awareness will also aid in better coping with chronic illness, which will impact the patient's psychological health. We aim, through this study, to measure the level of knowledge of CKD patients in King Abdulaziz University Hospital (KAUH) regarding their medical condition and specifically pertaining to the risk factors, clinical presentation, diagnosis, and different management plans.

Methodology

This cross-sectional study was conducted through the months December 2015 to January 2016 at KAUH, Jeddah, Saudi Arabia. The sample was selected using a convenience method. Participants who were willing to participate signed a consent form, promising confidentiality.

We included CKD patients from the dialysis unit, the medical wards, and the outpatient department clinics at KAUH.

The data were collected through a self-administered questionnaire, which aimed to assess the extent of knowledge of CKD patients about their illness. It included questions on demographics, in addition to seven questions to assess patients' knowledge and their sources of information. The questionnaire also included close-ended questions in the form of multiple-choice questions addressing knowledge in the following seven categories: 1) anatomy of the kidney; 2) physiology, namely kidney function; 3) causes of CKD; 4) clinical presentation of early stage CKD; 5) progression of CKD; 6) treatment options for end-stage renal disease (ESRD); and 7) resources available for CKD patients. For each correct answer, 1 point was given and a score ≥ 4 defined adequate knowledge [5].

The patients also received CKD educational cards approved by the Health Education Unit at KAUH. A poster containing encouraging messages, written by staff and students of KAUH, was hung in the dialysis unit to support the patients. An educational website in the Arabic language was designed and established for CKD patients so that they could have easy access to important information.

Ethical approval was obtained from the institutional review board committee at King Abdulaziz University.

The Statistical Package for Social Sciences (SPSS, version 20) was used. Data were presented as frequency (percent). One point was given for each correct answer to a question on CKD, giving a maximum possible score of 8 points and a minimum of 0. Respondents were considered to have an average overall knowledge of CKD if they scored ≥ 4 points. A chi-square test was used to determine differences between categorical data. Multivariate logistic regression analysis was used to examine the association between correct knowledge and different demographic data. A probability (P) ≤ 0.05 was considered significant.

Results

A total of 53 patients were surveyed. Approximately 50% were in the 40–60-year age group. When compared with respondents who had completed undergraduate education, intermediate school, or elementary school, a significantly high proportion of the respondents had completed high school (P = 0.002; Table 1). Further, a significantly higher proportion of the respondents were unemployed (P = 0.0001). Non-Saudis comprised a significantly lower proportion among patients with a knowledge score < 4 (22.2% versus 77.80%; P = 0.018). The duration of CKD ranged from 0–5 years in 61.1% of the patients compared with 22.2% and 16.7% who reported disease durations ranging from 10–20 years and 5–10 years, respectively (P = 0.042).

Regarding disease duration, most of the patients (52.80%) had CKD for 0–5 years (P = 0.0001) (Figure 1).

Approximately 60.4% of had patients correctly responded to question one. The proportion of correct responses to other questions were as follows: question two, 75.5%; question three, 60.4%; question four, 47.2%; question five, 47.2%; question six, 54.7%; question seven, 62.3%; and question eight, 67.9% (Table 2).

Multivariate logistic regression revealed that decreased knowledge (score < 4) was significantly associated with age (40–60 and ≥ 60 years), nationality (non-Saudi), marital status (married), low education level (uneducated and elementary school level), occupation (unemployed or retired), and kidney disease duration (0–5 years and > 20 years) (P < 0.05; Table 3).

Discussion

More than half of the patients in this study were older than 40 years, and less than one-quarter were younger than 40 years. Most of the patients were educated, having completed either high school or undergraduate education. Unfortunately, most of the patients were unemployed due to the effect of chronic illness on their quality of life, making it difficult for them to work for long hours and sustain their jobs. This is largely due to the impact of the medical symptoms of CKD and the psychological distress, even at earlier stages of CKD [6,7].

More than half the patients (> 52%) had CKD for 0–5 years. This can be explained by the low survival rate and increased mortality among our patient population. Mortality is substantially elevated in CKD patients and those receiving dialysis patient [8-10].

A systematic review showed that CKD was associated with an increased risk of all-cause mortality, especially those related to the cardiovascular system [11]. Another study conducted in Singapore showed that patients with CKD had increased rates of hospitalization and death [12]. This underscores the importance of disease awareness among CKD patients and the necessity of early medical intervention. Regarding the result of the questionnaire, most patients (60–70%) seemed to have an acceptable level of knowledge of the anatomy, physiology, and causes of CKD. However, the majority had limited knowledge about the symptoms of CKD and treatment options.

Furthermore, most of our cohort depended on their physician for knowledge about CKD. A physician can play a major role in educating and raising awareness in each patient, as the physician will discuss not only the nature of the disease in general but also each patient's case history. During the first clinic visit, the health care provider may provide patients with educational pamphlets explaining the nature of the disease and its possible complications. The awareness process should start in the early stages of CKD and in patients at high risk for CKD, such as those with diabetes mellitus. A study conducted in Taiwan showed that patients with late stages of CKD had more knowledge than those with early stages of CKD [13]. We identified several demographic characteristics in our patients that were significantly associated with a low level of knowledge. These characteristics included being married or unemployed or having a low educational level, which were also reported by other authors [5]. Furthermore, the authors showed that age (50–60 years) and lower income, which we did not explore in this cohort, were significantly associated with a low level of knowledge on CKD. We believe that older patients, unemployed patients, and those with a low education level should have simple, focused, and repetitive methods of education in order to increase their level of awareness.

Given both the high prevalence of CKD and low awareness among patients, there is a dire need to disseminate information on CKD to the public and CKD patients in particular. The limitations of our study cannot be overlooked and include its small sample size, unknown stages of CKD in our sample, and possible etiology of CKD. Future researches, especially those conducted in Saudi Arabia, are required to investigate patients' level of awareness of CKD and its effect on health-related outcomes.

Conclusion

As the prevalence of CKD is increasing worldwide, our study demonstrates inadequate knowledge of CKD among patients with the disease. Deficits in knowledge were associated with low education levels and unemployment status. Since most of our patients depend on their physicians for information, we suggest that more educational efforts should be initiated by health care providers, especially in persons at high-risk for CKD. Moreover, CKD patients should receive tailored education and be encouraged to adopt lifestyle modifications to prevent or slow the progression of CKD.

VOLUME-6 | ISSUE-3 | MARCH - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

Table 1. Demographic characteristics of the patients

Data	< 4 correct answers (n = 18)	≥ 4 correct answers (n = 35)	Total (n = 53)
Age groups			
< 40 years	4 (22.2%	13 (37.1%)	17 (31.50%)
40-60 years	9 (50.0%)	13 (37.1%)	22 (41.50%)
> 60 years	5 (27.8%)	9 (25.7%)	14 (26.40%)
Significance	0.311	0.633	0.397
Gender			
Male	7 (38.9%)	13 (37.1%)	20 (37.70%)
Female	11 (61.1%)	22 (62.9%)	33 (62.30%)
Significance	0.346	0.128	0.074
Nationality			
Saudi	4 (22.2%)	18 (51.4%)	22 (41.50%)
Non-Saudi	14 (77.8%)	17 (48.6%)	31 (58.50%)
Significance	0.018	0.866	0.216
Social status			
Married	9 (50.0%)	15 (42.9%)	24 (45.30%)
Single	5 (27.8%)	11 (31.4%)	16 (30.20%)
Divorced/ widowed	4 (22.2%)	9 (25.7%)	13 (24.50%)
Significance	0.311	0.449	0.160
Education level			
None	7 (38.9%)	1 (2.9%)	8 (15.10%)
Elementary school	3 (16.7%)	-	3 (5.70%)
Intermediate school	1 (5.6%)	6 (17.1%)	7 (13.20%)
High school	4 (22.2%)	15 (42.9%)	19 (35.80%)
Bachelor's degree	3 (16.7%)	13 (37.1%)	16 (30.20%)
Significance	0.255	0.003	0.002
Occupation			
None	14 (77.8%)	21 (60.0%)	35 (66.00%)
Working	2 (11.1%)	9 (25.7%)	11 (20.80%)
Retired	1 (5.6%)	4 (11.4%)	5 (9.40%)
Quit	1 (5.6%)	1 (2.9%)	2 (3.80%)
Significance	0.0001	0.0001	0.0001
Chronic kidney disease duration			
0-5 years	11 (61.1%)	17 (48.6%)	28 (52.80%)
5-10 years	3 (16.7%)	8 (22.9%)	11 (20.80%)
10-20 years	4 (22.2%)	9 (25.7%)	13 (24.50%)
> 20 years	-	1 (2.9%)	1 (1.90%)
Significance	0.042	0.002	0.0001

Table 2. Summary of respondents' responses to the individual questions

Question number	Questions	Frequency (%)	P-value
1	**How many kidneys do people need to have a normal life?**		
A	One kidney	32 (60.4)	0.0001
B	Two kidneys	10 (18.9)	
C	Don't know	11 (20.8)	
2	**What are the functions of the kidneys?**		
A	Analysis of food	4 (7.5)	
B	Produce enzymes that analyzed fats	4 (7.5)	0.001
C	Excrete waste products	41 (75.5)	
D	Don't know	9 (17.0)	
3	**What are the causes of kidney dysfunction?**		
A	Hypertension	13 (24.5)	
B	Diabetes mellitus	13 (24.5)	0.001
C	Genetic diseases	13 (24.5)	
D	All the above	32 (60.4)	
E	Don't know	8 (15.1)	
4	**What are the early symptoms of kidney dysfunction?**		
A	Back pain	25 (47.2)	0.061
B	Hematuria	25 (47.2)	
C	Asymptomatic	25 (47.2)	
D	All the above	17 (32.1)	
E	Don't know	11 (20.8)	
5	**Which of the following are incorrect regarding kidney dysfunction?**		
A	Kidney dysfunction can be avoided	25 (47.2)	
B	Kidney dysfunction can be treated with drugs	25 (47.2)	0.096
C	Kidney dysfunction is present if patients need dialysis	25 (47.2)	
D	None of the above	15 (28.3)	
E	Don't know	13 (24.5)	
6	**Where does renal dialysis occur?**		
A	At a renal dialysis center or at home	29 (54.7)	0.001
B	At a renal dialysis center only	21 (39.6)	
C	At home only	21 (39.6)	
D	Don't know	3 (5.7)	
7	**What is the best treatment for chronic renal dysfunction?**		
A	Drugs	11 (20.8)	0.001
B	Renal dialysis	11 (20.8)	
C	Renal transplant	33 (62.3)	
D	Don't know	9 (17.0)	
8	**What is your principal source of information?**		
A	Ask physicians	35 (66.0)	
B	Read scientific medical sites	1 (1.9)	0.001
C	Read forums or websites	4 (7.5)	
D	Ask friends and families	4 (7.5)	
E	Others	9 (17.0)	

Table 3. Multivariate logistic regression analysis to determine the socio-demographic factors that influence respondents' knowledge levels (n = 53)

Variables	P-value	Odds Ratio	95% Confidence Interval
Age groups			
< 40 years	0.186	0.484	0.13 –1.784
40-60 years	0.024	1.692	0.536–5.348
> 60 years	0.041	1.111	0.309–3.996
Gender			
Male	0.061	1.077	0.334–3.469
Female	0.187	0.929	0.288–2.991
Nationality			
Saudi	0.591	0.270	0.074–0.984
Non-Saudi	0.007	3.706	1.016–13.515
Social status			
Married	0.047	1.333	0.426–4.173
Single	0.075	0.839	0.239–2.941
Divorced/ widowed	0.062	0.825	0.215–3.168
Education level			
None	0.001	21.636	2.391–195.821
Elementary school	0.006	174865 2500.97	1748652500.97–1 748652500.97
Intermediate school	0.080	0.284	0.032–2.566
High school	0.306	0.381	0.104–1.394
Bachelor degree	0.253	0.338	0.082–1.395
Occupation			
None	0.027	2.333	0.635–8.569
Working	0.127	0.361	0.069–1.888
Retired	0.047	0.456	0.047–4.412
Quit	0.020	2.000	0.118–33.969
Chronic kidney disease duration			
0–5 years	0.034	1.664	0.523–5.289
5–10 years	0.068	0.675	0.155–2.934

10–20 years	0.062	0.825	0.215–3.169
> 20 years	0.029	0.000	0.000–0.000

Dependent variable is dichotomous outcome of < 4 and ≥ 4 knowledge scores.

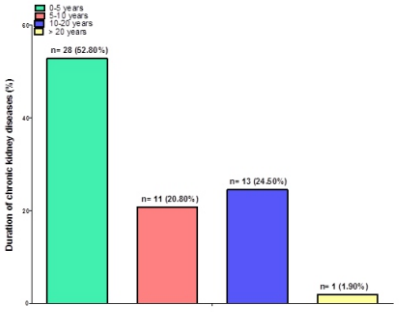

Figure 1. Duration (%) of chronic kidney diseases.

References

1. Al-Khowaiter SS, Al-Maawi AM, Al-Obaidy MS, Al-Ali AS, Al-Rukban MO, Al-Sedrani YA, Abdo AA. Patients awareness of their medical conditions in multi-specialty outpatient clinics in Saudi Arabia.
2. Torrel RB. Awareness, Education, and Prevention of Chronic Kidney Disease in the Older Adult. 2014. Honors Theses. Paper 253.
3. Alsuwaida AO, Farag YM, Al Sayyari AA, Mousa D, Alhejaili F, Al-Harbi A, Housawi A, Mittal BV, Singh AK. Epidemiology of chronic kidney disease in the Kingdom of Saudi Arabia (SEEK-Saudi investigators) - a pilot study. Saudi J Kidney Dis Transpl. 2010 Nov;21(6):1066-72.
4. Roomizadeh P, Taheri D, Abedini A, Mortazavi M, Mehrdad L, Mehdikhani B, Mousavi S, Hosseini F, Parnia A, Nakhjavani M. Limited Knowledge of Chronic Kidney Disease and its Main Risk Factors Among Iranian Community: An Appeal for Promoting National Public Health Education Programs. International Journal of Health Policy and Management. 2014;2(4):161-166.
5. Chow, Joshi VD, Tin AS, van der Erf S, Lim JF, Swah TS, Teo SS, Goh PS, Tan GC, Lim C, Kee TY. Limited Knowledge of Chronic Kidney Disease among Primary Care Patients – A Cross-Sectional Survey. BMC Nephrol. 2012 Jul 2; 13:54.
6. Sesso R, Rodrigues-Neto JF, Ferraz MB. Impact of socioeconomic status on the quality of life of ESRD patients. Am J Kidney Dis. 2003; 41:186-195.3
7. Kimmel PL, Patel SS. Quality of Life in Patients with Chronic Kidney Disease: Focus on End-Stage Renal Disease Treated with Hemodialysis. Semin Nephrol. 2005; 26:68–79.
8. Go AS, Chertow GM, Fan D, McCulloch CE, Hsu CY. Chronic kidney disease and the risks of death, cardiovascular events, and hospitalization. N Engl J Med. 2004; 351:1296–305.
9. Evans M, Fryzek JP, Elinder CG, et al. The natural history of chronic renal failure: results from an unselected, population-based, inception cohort in Sweden. Am J Kidney Dis 2005; 46:863–70.
10. de Jager DJ, Grootendorst DC, Jager KJ, van Dijk PC, Tomas LM, Ansell D, Collart F, Finne P, Heaf JG, De Meester J, Wetzels JF, Rosendaal FR, Dekker FW. Cardiovascular and noncardiovascular mortality among patients starting dialysis. JAMA. 2009; 302:1782–9.
11. Tonelli M, Wiebe N, Culleton B, House A, Rabbat C, Fok M, McAlister F, Garg AX. Chronic Kidney Disease and Mortality Risk: A Systematic Review. J Am Soc Nephrol. 2006; 17:2034–2047.
12. Ramirez SPB: Chronic Kidney Disease Prevention in Singapore. Clin J Am Soc Nephrol. 2008 Mar;3(2):610-5.
13. Hsu C, Hwang SJ, Wen CP, Chang HY, Chen T, Shiu RS, Horng SS, Chang YK, Yang WC. High Prevalence and Low Awareness of CKD in Taiwan: A Study on the Relationship Between Serum Creatinine and Awareness from a Nationally Representative Survey. Am J Kidney Dis. 2006 Nov;48(5):727-38.