

Study of the Level of Awareness of Chronic Kidney Diseases among Diabetic Patients in Al-Ahsa Governorate, Kingdom of Saudi Arabia (Cross-Sectional Study)

Dawood Salman Albujaays¹, Hany Said El-barbary², Abdulaziz Khalid Althafar¹, Abdullah Hisham Almulla, Marwan Abdulrahman Al-Shaikh Hussain¹, Sayed Ibrahim Ali³

¹Medical Intern, Department of Internal Medicine, College of Medicine, King Faisal University, Al-Hasa Region, Saudi Arabia, ²Assistant Professor, Department of Medicine, College of Medicine, King Faisal University, Al-Hasa Region, Saudi Arabia, ³Assistant Professor, Department of Family and Community Medicine, College of Medicine, King Faisal University, Al-Hasa Region, Saudi Arabia

Abstract

Introduction: Chronic kidney disease (CKD) is one of the most common complications affected by diabetes mellitus (DM) in the world. It is a life-threatening complication in diabetic patients, and this will cause end-stage renal disease in developed countries. No study has been done before in the eastern region of Saudi Arabia. Making it important to do such kind of studies.

Purpose: The purpose of this study is to determine the level of awareness of CKD among diabetic patients in Al-Ahsa Governorate, Kingdom of Saudi Arabia.

Materials and Methods: This cross-sectional study was conducted in Al-Ahsa Governorate of Saudi Arabia, from March 2017 to December 2017. The researchers have done the questionnaire on 372 individuals of diabetic patients. Data analysis was done using SPSS program version 24.

Results: The minimum age of the participants was 19, and the maximum age was 65. More than half of them are in the age group (40–70). The number of male participants is 107 (28.8) and females 265 (71.2). The mean score of the level of awareness was 7.5 ± 3.2 . However, the number of the participants who know that DM can cause CKD are 196 (52.7.9%). 100 (26.9%) were not aware of the association between CKD and uncontrolled diabetes. 76 (20.4%) of the participants did not hear about CKD. However, the majority of Saudi populations were not aware of the association between CKD and uncontrolled diabetes. We summarize our findings that our patients had poor attitude and knowledge of awareness compared to the others, which emphasize the needs for implementation of awareness campaigns, future public health, and educational interventions.

Conclusion: CKD is common and growing problem worldwide but not adequately recognized problem among diabetic population in Al-Ahsa Governorate, Kingdom of Saudi Arabia. As there is lack of awareness among Saudi diabetic population about this problem, there is a strong need for health and educational intervention programs to increase the knowledge level and awareness about this disease as well as the necessity of screening and periodic follow-up programs.

Key words: Awareness, Chronic kidney disease, Diabetes mellitus, Knowledge, Practice

INTRODUCTION

Diabetes mellitus (DM) is a growing health problem worldwide.^[1] In 2016, it is estimated globally that 422-million adults suffering from diabetes, mainly in developing

countries.^[1] The Middle Eastern regions have the second highest rate of increases in diabetes compared to rest of the world. In Saudi Arabia, the prevalence was 17.6% of the population in 2015.^[2] Previous studies conducted in eastern provinces of the country have found that the prevalence of DM is 31% among the population.^[3] DM has many complications in different organs in the body. The kidney is one of these organs that is well known to be affected by uncontrolled DM.^[4] Chronic kidney disease (CKD) is one of the most common complications affected by DM in the world.^[5] It is a life-threatening complication in

Access this article online



www.ijss-sn.com

Month of Submission : 01-2018
Month of Peer Review : 02-2018
Month of Acceptance : 02-2018
Month of Publishing : 03-2018

Corresponding Author: Dawood Salman Albujaays, Hufof, Al-Ahsa, Saudi Arabia. Phone: +966504933655. E-mail: dwd.201011@gmail.com

diabetic patients, and this will cause end-stage renal disease in developed countries.^[6] CKD defined as either persistent albuminuria or decreased glomerular filtration rate (GFR) or both.^[7] It affects approximately one-third of people with DM either Type 1 or Type 2.^[8] The pathogenesis of CKD has been described as progressive albuminuria that will lead to a steady loss of GFR.^[9] To the best of the researcher's knowledge, no study has been done before in the eastern region of Saudi Arabia. Making it important to do such kind of studies.

MATERIALS AND METHODS

Study design

This cross-sectional study was conducted in Al-Ahsa Governorate of Saudi Arabia, from March 2017 to December 2017.

Participants

A total of 372 participants aged from 18 years and above were selected randomly from Al-Ahsa, using simple random sampling to assess the level of awareness toward diabetic nephropathy.

Data Collection

Electronic questionnaire was validated for data collection. The study population was randomly selected from the population in Al-Ahsa city. After obtaining informed consent, the questionnaire was distributed among the participants. The participants were assured that confidentiality would be maintained. The questionnaire consisted of four sections: (i) Sociodemographic data, (ii) early signs and symptoms of the disease, (iii) risk factors, and (iv) the regular screening. The questionnaire was pre-tested and translated into Arabic and then back-translated to English to validate the translation.

The level of awareness was assessed on 29 questions about the awareness of the disease. Ethical approval was obtained from the Research Ethics Committee from King Faisal University.

Data Analysis

Data analysis was performed using SPSS (version 24). Chi-square test was run for analyzing qualitative data. *P*-values were considered statistically significant if *P* < 0.05.

RESULTS

A total of 375 individuals with diabetes in Al-Ahsa city were included in this study. The minimum age of the participants was 19, and the maximum age was 65. More than half of them are in the age group of 40–70. The number of male participants is 107 (28.8) and females 265 (71.2).

The primary educational level was found in 13 (3.5), 68 (18.3) had secondary, and 291 (78.2) had academic educational level. The demographic characteristics are shown in Table 1.

We found in this study that the age group (21–50) has the highest awareness level (26.8%) compared to the other age groups. Another finding in this study was level of awareness between males and females. 50% of females was aware compared with 17.5% of males [Table 1].

Furthermore, we found that 2.4% was aware in primary educational level compared with 11.3% in secondary school and 43.5% in academic educational level. [Table 2].

The responses of all the participants related to the awareness of diabetic nephropathy are shown in Table 3.

Regarding the type of diabetes, Type 1 was 21 (6.5%) of the participants, and 308 (82.8%) were Type 2 diabetic participants. Rest of the participants were not sure about their type. They were 43 (11.6%) patients. Most of the participants discovered that they are diabetic in age between 30 and 50 years which equal to 194 (52.2%). The others were variable, 82(22.6%) were diabetic ≤30 years, and 92 (24.7%) discovered the disease ≥50 years.

The mean score of the level of awareness was 7.5 ± 3.2 . However, the number of the participants who know

Table 1: Demographical data (n=372)

Demographical data	n (%)
Age	
>20	23 (8.3)
20–50	177 (74.5)
<50	72 (17.2)
Gender	
Male	107 (28.8)
Female	265 (71.2)
Marital status	
Single	106 (28.5)
Married	253 (68.0)
Divorced	13 (3.5)
Educational level	
Primary	13 (3.5)
Secondary	68 (18.3)
Academic	291 (78.2)

Table 2: Awareness

Level of awareness	Frequency	Percent	Valid percent	Cumulative percent
Valid				
Not aware	188	50.6	50.6	32.5
Aware	158	42.5	42.5	75.0
Highly aware	26	6.9	6.9	100.0
Total	372	100.0	100.0	

Table 3: The responses of different statements related to the awareness of diabetic nephropathy

Statement	Yes	I don't know	No
Diabetes mellitus is a major cause of chronic kidney disease?	196 (52.7)	100 (26.9)	76 (20.4)
Have you done a check for kidney function such as: Urine analysis and albumin analysis	171 (46.0)	18 (4.8)	183 (49.2)
If you have diabetes, has your doctor ever talked to you about your risk for developing CKD?	51 (13.7)	207 (55.6)	113 (30.4)
Do you know what are the different methods to measure the kidney function?	114 (30.6)	109 (29.3)	148 (39.8)
Do you know what are the worst complications of chronic kidney disease?	109 (29.3)	121 (32.5)	141 (37.9)
Do you think there are effective ways to prevent chronic kidney disease?	186 (50.0)	134 (36.0)	51 (13.7)
Do you think you will notice the symptoms of chronic kidney disease?	54 (14.5)	201 (54)	117 (31.5)

CKD: Chronic kidney disease

that DM can cause CKD are 196 (52.7.9%). 100 (26.9%) were not aware of the association between CKD and uncontrolled diabetes. 76 (20.4%) participants did not hear about CKD.

This study shows that only 93 (25%) diabetic patients are aware about the effects of DM on their kidney. On the other hand, we found that 121 (22.5%) of participants have a low level of awareness about the disease which shown in Table 2.

DISCUSSION

DM is well known to be a common metabolic disease in Saudi Arabia and risk for many complications. CKD is one of the major complications of DM according to the past epidemiological studies. Early recognition of CKD could prevent complications and slow progression.

The aim of the study was to determine the level of awareness of CKD among diabetic patients in Al-Ahsa Governorate, Kingdom of Saudi Arabia.

This study showed that there is no significant difference between males and females in the level of awareness of CKD among diabetic patients in Al-Ahsa region.

Regarding the age variable, the study found that the age group between 21 and 50 has a higher level of awareness toward CKDs. We attribute that this age group has more knowledge about the disease and more experiences about its effects compared with younger age group. However, no significant difference was found between the age groups in the level of awareness.

Furthermore, the study results showed that the participants who have academic educational levels had the highest scores in the questionnaire regarding the impact of the educational intervention on the level of knowledge and awareness about the disease.

In addition, this study concluded that more physicians informing the patients about the risk of CKD will increase the level of awareness. As Chi-square ($P = 0.001$) showed

that patients who have been informed by the physicians have a higher level of awareness score than the others.

An important significant finding in this study is the higher knowledge and positive attitude toward the disease, which shows that the level of awareness should be increasing among the diabetic population.

Unfortunately, there is no scientific study about CKD which was done in Saudi Arabia, but globally, there were some studies conducted in different countries. Such as, a study conducted in the United States in 2011 among African–American adults about CKD concluded that the level of awareness of CKD is low (13.6%).

Another study conducted in Iran in 2014 showed that there is a deficiency in the level of awareness of CKD among Iranians population (21.2%).^[10,11]

Although if we compared this study which was done in the selected region of Saudi Arabia and limited patients, We will find that the knowledge score (6.9%) is low compared to other studies that conducted widely in different countries such as Iran (21.2%),^[11] the United States (13.6%),^[12] and Australia (8.6%).^[13] We found that the knowledge score (6.9%) is low.

However, the majority of Saudi populations were not aware of the association between CKD and uncontrolled diabetes.

We summarize our findings that our patients had poor attitude and knowledge of awareness compared to the others, which emphasize the needs for implementation of awareness campaigns, future public health, and educational interventions.

CONCLUSION

CKD is a common and growing problem worldwide but not adequately recognized problem among diabetic population in Al-Ahsa Governorate, Kingdom of Saudi Arabia. As there is a lack of awareness among Saudi diabetic population about this problem, there is a strong need for health and educational intervention programs to increase the

Albujays, *et al.*: Study of the Level of Awareness of Chronic Kidney Diseases among Diabetic Patients in Al-Ahsa Governorate, Kingdom of Saudi Arabia (Cross-Sectional Study)

knowledge level and awareness about this disease as well as the necessity of screening and periodic follow-up programs.

REFERENCES

1. World Health Organization. Prevention of Blindness from Diabetes Mellitus. Report of a WHO Consultation, 9-11 November, 2005. Geneva, Switzerland: WHO; 2006. p. 1-3.
2. Al Rasheed R, Al Adel F. Diabetic retinopathy: Knowledge, awareness and practices of physicians in primary-care centers in Riyadh, Saudi Arabia. *Saudi J Ophthalmol* 2017;31:2-6.
3. Alwakeel JS, Al-Suwaida A, Isnani AC, Al-Harbi A, Alam A. Concomitant macro and microvascular complications in diabetic nephropathy. *Saudi J Kidney Dis Trans* 2009;20:402.
4. Liu Z, Fu C, Wang W, Xu B. Prevalence of chronic complications of Type 2 diabetes mellitus in outpatients-a cross-sectional hospital based survey in urban China. *Health Qual Life Outcomes* 2010;8:62.
5. Tuttle KR, Bakris GL, Bilous RW, Chiang JL, De Boer IH, Goldstein-Fuchs J, *et al.* Diabetic kidney disease: A report from an ADA consensus conference. *Diabetes Care* 2014;37:2864-83.
6. Bojestig M, Arnqvist HJ, Hermansson G, Karlberg BE, Ludvigsson J. Declining incidence of nephropathy in insulin-dependent diabetes mellitus. *N Engl J Med* 1994;330:15-8.
7. Hallan SI, Dahl K, Oien CM, Grootendorst DC, Aasberg A, Holmen J, *et al.* Screening strategies for chronic kidney disease in the general population: Follow-up of cross sectional health survey. *BMJ* 2006;333:1047.
8. Mogensen CE, Christensen CK. Predicting diabetic nephropathy in insulin-dependent patients. *N Engl J Med* 1984;311:89-93.
9. Tuttle KR, Stein JH, De Fronzo RA. The natural history of diabetic nephropathy. *Semin Nephrol* 1990;10:184-93.
10. Plantinga LC, Tuot DS, Powe NR. Awareness of chronic kidney disease among patients and providers. *Adv Chronic Kidney Dis* 2010;17:225-36.
11. Roomizadeh P, Taheri D, Abedini A, Mortazavi M, Larry M, Mehdikhani B, *et al.* Limited knowledge of chronic kidney disease and its main risk factors among Iranian community: An appeal for promoting national public health education programs. *Int J Health Policy Manage* 2014;2:161-6.
12. Waterman AD, Browne T, Waterman BM, Gladstone EH, Hostetter T. Attitudes and behaviors of African Americans regarding early detection of kidney disease. *Am J Kidney Dis* 2008;51:554-62.
13. White SL, Polkinghorne KR, Cass A, Shaw J, Atkins RC, Chadban SJ, *et al.* Limited knowledge of kidney disease in a survey of ausDiab study participants. *Med J Aust* 2008;188:204-8.

How to cite this article: Albujays DS, El-barbary HS, Althafar AK, Almulla AH, Hussain MAAS, Ali SI. Study of the Level of Awareness of Chronic Kidney Diseases among Diabetic Patients in Al-Ahsa Governorate, Kingdom of Saudi Arabia (Cross-Sectional Study). *J Sci Stud* 2018;5(12):88-91.

Source of Support: Nil, **Conflict of Interest:** None declared.