Lebda Medical Journal
Vol. 6, Dec. 2019, p.221-224

Assma H Al-taworghei
Received 10 Oct. 2019; accepted in revised form 24 Dec. 2019

Chronic Kidney disease among a sample of Libyan population: What are the leading Risk Factors?

Assma H Al-taworghei[1], Ebtissam S Al-saqer[1] , Enas A Erhoma[1] , Laila T Sabei [2] and Salem H Abukres[*3]

1 Tripoli College of Medical Sciences,
2 Faculty of medicine. University of Tripoli,
3 Elmergib University, Faculty of Pharmacy, Al khoms, Libya,
* Corresponding Author

ABSTRACT

Background: Retrospective study about the risk factors for chronic kidney disease (CKD) particularly end stage of renal failure (ESRF) among Libyan patients in 2018. In this paper we focus the relation between selected diseases that may be associated with CKD on cross with different lifestyle factors such as eating habits.

Methods: Selected patients, from two local medical centres in Tripoli, this study were designed depended on the answers of patients from face to face questionnaire of 35 questions, during the period from Jul/2018 up to Jan/2019

Results: 110 patients with ESRF were interviewed. Response rate was 83%. We noticed that the most risk factors for ESRF among our sample patients were hypertension (HT) 32% , followed by hypertension and diabetes mellitus (DM) together 20%, then diabetes 11.8% . eating habits such as adding salt to food and consumption of salty food may also have contributed to ESRF progression.

Conclusions: As there are many different risk factors for CKD, such as chronic disease and eating habits, regular checks of kidney function is highly recommended.

Key words: Chronic renal disease, Hypertension, Diabetes, Libya.

INTRODUCTION

Chronic kidney disease (CKD) is a major health issue in many countries. For example, in the United States around 20 millions of American adults have CKD.(1) CKD may progress to End Stage Renal Failure (ESRF) when kidney must be replaced with dialysis or transplantation. Both terms i.e. CKD and ESRF are used interchangeably in this article. Several chronic diseases have been reported as risk factors for CKD. The leading risk is diabetes, where 30 to 40% of diabetic patients are at risk of CKD.(3, 4) CKD progression is independent of diabetes type.(4) Diabetic nephropathy is a major health concern bear in mind that the prevalence of diabetes among population continues to rise. Moreover, in many cases diabetes and hypertension are coexistent. Thus, uncontrolled blood glucose and blood pressure are significant risk factor for diabetic nephropathy.(5) The second important risk factor for CKD is hypertension.(4) Many studies have confirmed this association. For example, Plantinga et al, reported that 70% of CKD patients have uncontrolled blood pressure.(6) Moreover in another study, even prehypertensive patients were 62% more likely to develop CKD than normotensive individuals.(7) Therefore, the target blood pressure should be 130/80 mmHg to minimize such risk. (4)

Dietary factors such as salt and protein intake have been also linked to CKD. A study claimed that, salt may lead to CKD through an increase in albuminuria particularly in obese adults.(8) Moreover, increased salt intake causes endothelial dysfunction which may result in end-organ damage to the kidney.(9) On the other hand, high protein intake (from animal sources) leads to change in glomerular filtration rate (GFR) to excrete more creatinine and urea. Continues consumption of high protein diet may cause a decline in renal function and accelerate CKD in susceptible individuals over years. It also diminishes the remaining renal function in dialysis patients. However, it is important to mention that protein intake has not been confirmed as a risk factor for CKD in healthy individuals (10). In Libya there are only few studies that explored the potential risk factors for CKD among the Libyan population.

METHODS

Corresponding author: abokrase2007@hotmail.com

The present study designed to explore what are the most common chronic diseases and usual daily eating and habits in a sample of Libyan patients who are currently on dialysis (their CKD has devolved to ESRF). The patients were asked to report their disease and daily eating habits before they have been diagnosed with ESRF.

A face to face interview was used in this study. A semi-structured questionnaire consisted of 35 questions was used to collect data about current and previous diseases and eating habits. This paper discusses only their previous disease(s) and eating habits. In Other words, what disease our sample had before they progress to ESRF. The questionnaire was validated using feedback from colleagues and patients.

All patients who are currently on dialysis at two medical centres in Tripoli, Libya, were asked to participate in this study and were considered consent if they agreed to answer the questionnaire. Data collection continued from July 2018 to January 2019. Data was then analysed and presented using IBM SPSS version 23 and Microsoft excel 2013.

RESULTS

Eighty eight out of 110 ESRF patients (80%) agreed to participate in this study. The 22 patients who refused to participate cited they were too sick to give information, or there was no time to fill in the questionnaire as they were under the dialysis process at that time. Table 1 displays the demographic data. The age group 41-65 was the most affected group (54.5%). Moreover, females were slightly more affected than males (54.5 vs 45.5). Most patients (62.7%) were among average income level. Primary education level and university & above were the most affected among other education levels; 35.5% and 30.9%, respectively. Housewife and retired were the most affected among other work groups; 29.1% and 24.5%, respectively. See Table 2 for more details.

Patients were also asked about their daily eating habits; namely daily eating of saluted food, red meat and adding salt to their food. Table 4 shows that there was excessive salt intake by the patients probably because of eating salted nuts, salted seeds, potato chips and adding more salt to their food. Red meat and soda drinks consumption were also high; these were reported by 96 (87.2%) and 88 (81.4%), respectively. More than half of the participants reported using analgesics daily (28.2%) or sometimes (23.6%), in total 57 patients (51.8%) used analgesics.

Table 1. Demographic data

Item	Groups	Number	Percent
Age	17-40	34	30.9
	41-65	60	54.5
	66-90	16	14.5
Gender	Male	50	45.5
	Female	60	54.5
Income level	Under the average	20	18.2
	Average	69	62.7
	Good	19	17.3
	Excellent	2	1.8
Education level	Uneducated	14	12.7
	Primary	39	35.5
	Secondary	23	20.9
	University & above	34	30.9
Work status	Retiree	27	24.5
	Employee	14	12.7
	Housewife	32	29.1
	Teacher	8	7.3
	Not working	13	11.8
	Student	4	3.6
	others	12	10.9

*UTI: urinary tract infection, # one patient did not answer the question

Corresponding author: abokrase2007@hotmail.com

Table 4. Daily eating habits before ESRF

Item	Yes n(%)	Sometimes n(%)	Total n(%)	No n(%)
Salted nuts*	56 (51.4)	33 (30.3)	89 (80.9)	20 (18.3)
Red meat	64 (58.2)	32 (29.1)	96 (87.2)	14 (12.7)
Adding salt*	32 (29.4)	9 (8.3)	41 (37.6)	68 (62.4)
Salted seeds	33 (30.0)	25 (22.7)	58 (52.7)	52 (47.3)
Potato chips	29 (26.4)	17 (15.5)	46 (41.8)	64 (58.2)
Analgesics	31 (28.2)	26 (23.6)	57 (51.8)	53 (48.2)

*one patient did not answer the question

DISCUSSION

This study aimed to identify risk factors for ESRF. A This study aimed to identify risk factors for ESRF. A total of 88 patients with ESRF reported their disease history and eating habits before ESRF. As far as we know this is the first study in Tripoli, Libya. ESRF was slightly more prevalent in females than males (54.5 vs 45.5%). This is in contrast with other studies. (4, 11) This could be because our study was a retrospective study. Studies have indicated that male gender is associated with faster progression CKD and risk of death in the dialysis patients.(4, 12, 13) Therefore, as our study was retrospective, females were more in our sample because they live longer than males.

One important finding of the current study is the increased association between housewifely and ESRF. They represent about one third (29.1%). Among them there were 28 out of 32 were within age group (25-65). This could be explained by considering housewife females usually have less physical activity compared to working females. Physical inactivity has been linked to CKD.(4) Moreover, sitting in the house may also contribute to more eating of salty food such as salted nuts and potato chips. However, no correlation was reported in our sample between housewife and eating more salty nuts (Person correlation test). This is probably because our sample was too small to detect a significant difference.

Association between several chronic disease and ESRF has been studied extensively. Jha et al. conducted a literature review about this association in 2012.(14) Diabetes mellites and hypertension are the top two leading risk factors. In our study, hypertension was the most reported diseases before patient progressed to ESRF. Hsu et al. studied the relationship between hypertension and ESRF in patients without baseline kidney disease. The study involved 316 675. The researcher found even a relatively modest eleven in blood pressure is an independent risk factor for ESRD. (7) Diabetes was the second reported disease in our sample. In Libya, diabetes is an emerging public health issue where the prevalence of this disease was 14.1% as reported by Kadiki and Roaeid.(15) The same researchers also reported in another study that 22% of diabetic patients had hypertension.(16) In our study, 20% of patients had both diabetes and hypertension.

Consumption of red meat on daily bases before ESRF was high in our sample. The relation between high protein intake and ESRF has been extensively researched.(17, 18) While many researchers agreed on a high correlation between red meat intake and ESRF, knight et al. stated that the negative effect of high protein diet includes only patients who already have CKD.(19) Moreover, in study by Berryman et al. stated that diets higher in animal and plant protein did not cause renal impairment.(20) However, reducing protein intake or replacing red meat with chicken has improved renal function. Withdrawing of red meat from the usual diet reduces albuminuria and improves serum fatty acid profile in type 2 diabetes.(21) More than half of the patients used analgesics on daily or sometimes bases. The term analgesics means non-steroids anti-inflammatory drugs such as aspirin and ibuprofen. chronic use of these drugs over years may causes renal retinopathy.(22) hey are available without prescription and patients may consider them safe for long term use.

This study has a few limitations. Firstly, although the patient's response rate was high, sample size was small to detect statistically significant difference. Secondly, the study was retrospective, the patients reported their pervious daily habit before they have CKD. Thus, their answers may have affected by memory factors about daily eating habits. However, this did not affect their answers about disease history.

CONCLUSION

Hypertension followed by both hypertension and diabetes were the most reported diseases by our sample before they progress to ESRF. A significant portion of the patients were housewives. This apparent association requires more investigations. As there are many different risk factors for CKD, such as chronic disease and eating habits, regular checks of kidney function is highly recommended.

Corresponding author: abokrase2007@hotmail.com

REFERENCES

1. Keith DS, Nichols GA, Gullion CM, Brown JB, Smith DH. Longitudinal follow-up and outcomes among a population with chronic kidney disease in a large managed care organization. Archives of internal medicine. 2004;164(6):659-63.
2. Lewis R. Understanding Chronic Kidney Disease: A guide for the non-specialist: M&K Update Ltd; 2012.
3. Targher G, Chonchol M, Bertolini L, Rodella S, Zenari L, Lippi G, et al. Increased risk of CKD among type 2 diabetics with nonalcoholic fatty liver disease. Journal of the American Society of Nephrology. 2008;19(8):1564-70.
4. Hawkins M. The relationship between physical activity and kidney function/chronic kidney disease: University of Pittsburgh; 2010.
5. Bilo HJ, ter Wee PM, Gans RO. Pathogenesis of Diabetic Nephropathy: Haemodynamic Alterations. Diabetic Nephropathy. 2001:59-70.
6. Plantinga LC, Miller III ER, Stevens LA, Saran R, Messer K, Flowers N, et al. Blood pressure control among persons without and with chronic kidney disease: US trends and risk factors 1999–2006. Hypertension. 2009;54(1):47-56.
7. Hsu C-y, McCulloch CE, Darbinian J, Go AS, Iribarren C. Elevated blood pressure and risk of end-stage renal disease in subjects without baseline kidney disease. Archives of internal medicine. 2005;165(8):923-8.
8. Aaron KJ, Campbell RC, Judd SE, Sanders PW, Muntner P. Association of dietary sodium and potassium intakes with albuminuria in normal-weight, overweight, and obese participants in the Reasons for Geographic and Racial Differences in Stroke (REGARDS) Study. The American journal of clinical nutrition. 2011;94(4):1071-8.
9. Sanders PW. Vascular consequences of dietary salt intake. American Journal of Physiology-Renal Physiology. 2009;297(2):F237-F43.
10. Martin WF, Armstrong LE, Rodriguez NR. Dietary protein intake and renal function. Nutrition & metabolism. 2005;2(1):25.
11. Pounds LL, Teodorescu VJ. Chronic kidney disease and dialysis access in women. Journal of vascular surgery. 2013;57(4):49S-53S. e1.
12. Bloembergen WE, Port FK, Mauger EA, Wolfe RA. Causes of death in dialysis patients: racial and gender differences. Journal of the American Society of Nephrology. 1994;5(5):1231-42.
13. Eriksen B, Ingebretsen O. The progression of chronic kidney disease: a 10-year population-based study of the effects of gender and age. Kidney international. 2006;69(2):375-82.
14. Jha V, Garcia-Garcia G, Iseki K, Li Z, Naicker S, Plattner B, et al. Chronic kidney disease: global dimension and perspectives. The Lancet. 2013;382(9888):260-72.
15. Kadiki O, Roaeid R. Prevalence of diabetes mellitus and impaired glucose tolerance in Benghazi Libya. Diabetes & metabolism. 2001;27(6):647-54.
16. Kadiki O, Roaed R. Epidemiological and clinical patterns of diabetes mellitus in Benghazi, Libyan Arab Jamahiriya. Eastern Mediterranean health journal = La revue de sante de la Mediterranee orientale = al-Majallah al-sihhiyah li-sharq al-mutawassit. 1999;5((1)):6-13.
17. Schwingshackl L, Hoffmann G. Comparison of high vs. normal/low protein diets on renal function in subjects without chronic kidney disease: a systematic review and meta-analysis. PloS one. 2014;9(5):e97656.
18. Juraschek SP, Appel LJ, Anderson CA, Miller III ER. Effect of a high-protein diet on kidney function in healthy adults: results from the OmniHeart trial. American Journal of Kidney Diseases. 2013;61(4):547-54.
19. Knight EL, Stampfer MJ, Hankinson SE, Spiegelman D, Curhan GC. The impact of protein intake on renal function decline in women with normal renal function or mild renal insufficiency. Annals of internal medicine. 2003;138(6):460-7.
20. Berryman CE, Agarwal S, Lieberman HR, Fulgoni III VL, Pasiakos SM. Diets higher in animal and plant protein are associated with lower adiposity and do not impair kidney function in US adults. The American journal of clinical nutrition. 2016;104(3):743-9.
21. de Mello VD, Zelmanovitz T, Perassolo MS, Azevedo MJ, Gross JL. Withdrawal of red meat from the usual diet reduces albuminuria and improves serum fatty acid profile in type 2 diabetes patients with macroalbuminuria. The American journal of clinical nutrition. 2006;83(5):1032-8.
22. Sriperumbuduri S, Hiremath S. The case for cautious consumption: NSAIDs in chronic kidney disease. Current opinion in nephrology and hypertension. 2019;28(2):163-70.

Corresponding author: abokrase2007@hotmail.com