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Cross-sectional study on knowledge of chronic kidney disease among medical outpatient clinic patients of tertiary hospital of eastern India: An original research study

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Abstract
Background: Chronic kidney disease (CKD) is recognized as a major health dilemma affecting a greater proportion of people across the world. As we all know that the early detection is important to prevent further injury and progressive loss of renal function. Under the light of such intermingling evidences, we planned the present study to assess the knowledge of outpatients in relation to CKD.
Materials & Methods: The present study included assessment of knowledge of outpatient's clinic patients in relation to chronic kidney diseases. A total of 200 patients were included the present study.
A pre-framed questionnaire was given to all the subjects. All the questions were assessed and analysed by experienced subject expert and physicians. All the results were analysed by SPSS software.
Results: A total of 200 subjects were included in the present study. 40 and 45 patients belonged to the age group of 25 to 35 years and 36 to 45 years respectively. Significant results were obtained while comparing the mean knowledge score of the subjects divided on the basis of their age. Males had significantly more knowledge of CKD in comparison to females. We also observed an increase in the knowledge of subjects in relation to CKD with a corresponding increase in the level of education of the subjects.
Conclusion: Within the limitation of the study, the author concluded that the existing level of knowledge among the studied patients was at lower levels.

Keywords: chronic kidney disease, knowledge, patients

Introduction

As we all are aware that the relative maintenance of kidney health is an alarming health priority across the globe. Usually, chronic kidney disease (CKD) is identified as a chief health problem distressing approximately 14% of the US population. Additionally, chronic kidney disease (CKD) is documented as a major health problem in China approximately 13% of the United States population. Numbers of prevalent CKD patients will continue to rise, reflecting the growing elderly population and increasing numbers of patients with diabetes and hypertension [1, 2, 3]. With the increasing numbers of CKD patients, primary care clinicians are usually confronted with management of the complex medical problems particularly related to patients with chronic renal diseases [4, 5, 6, 16, 17]. Despite rising incidence of CKD, it is frequently leftover under-recognized and under-treated. Literature has well evidenced that data for screening and management of early stage CKD is limited due to absence of large randomized controlled trials. By definition CKD is kidney damage for ≥ 3 months, defined by structural or functional abnormalities of the kidney, with or without decreased glomerular filtration rate (GFR). CKD is also defined as the presence of kidney damage, manifested by abnormal albumin excretion or decreased kidney function, quantified by measured or estimated glomerular filtration rate (GFR) that persists for more than 3 months. General risk factors for the development of CKD include diabetes, hypertension, age ≥ 55 years, family history of kidney disease, obesity or metabolic syndrome. Structural and other medullar damages of kidney usually refers to pathologic ingressions either confirmed by imaging studies or renal biopsy, anomalies in urinary system, or increased urinary albumin excretion rates. Mortality in patients with end stage renal disease remains 10-20 times higher than that in the general population. The focus in recent years has thus shifted to optimising the care of these patients during the phase of chronic kidney disease, before the onset of end stage renal disease [7, 18, 19, 20]. Renal disease is often progressive once glomerular filtration rate falls by 25% of normal. Early detection is important to prevent further injury and progressive loss of renal function [8, 21]. Under the light of above evidence, we planned the present study to assess the knowledge of outpatients in relation to CKD.

Materials & Methods

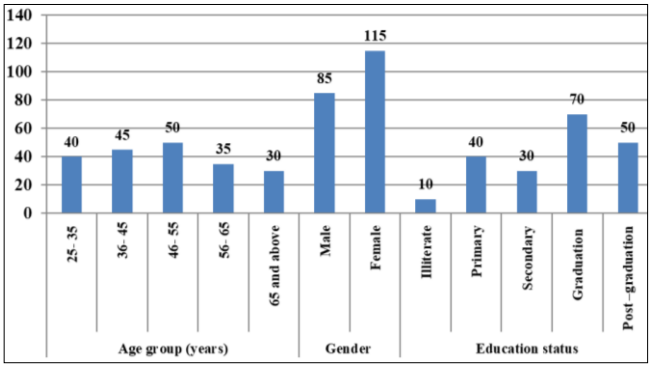
The present study was conducted in the department of nephrology the institute and included assessment of knowledge of outpatient's clinic patients in relation to chronic kidney diseases. Written consent was obtained from all the patients after explaining in detail the entire study protocol. A total of 200 patients were included the present study. Exclusion criteria for the present study included:

- Patients less than 25 years of age,
- Patients in which diagnosis of End stage renal disease (ERSD) on dialysis was given,
- Patients with positive history of kidney transplant,
- Patients with history of any other systemic illness,
- Patients with any known drug allergy.

A pre-framed questionnaire, as described previously in the literature, was given to all the subjects. The questionnaire was divided into three parts [9]. Part 1 consisted of questions meant for excluding the subjects who didn't fulfilled the inclusion and exclusion criteria. Part 2 consisted of questions for collecting information regarding demographic and clinical details of the subjects. The third part consisted of questions for assessing the knowledge of subjects regarding CKD. All the questions were assessed and analysed by nephrologist and physicians. Author had ensured to have hassle free responses from the participating patients. The questions of the questionnaire were explained to the patients in their local languages also (Table 1). This was done to ensure the accuracy of the study results. One mark was awarded to each correct answered. In addition, pretesting was conducted on the target respondents to ensure their understanding of the translated questionnaire. All the results were analysed by SPSS software. Chi- square test and student t test were used for assessment of level of significance. P- value of less than 0.05 was taken as significant. Author had finalized to conduct and complete our study on survey basis. Literature has well evidenced that survey-based studies are extremely useful in obtaining detailed information regarding individual and group perceptions and attitudes. In addition, questionnaire-based studies also offer a wider range of information with better intelligibility. Right before the execution of the study, author had explained the relative significance of this study to all participating patients. The privacy and other interrelated rights of the patients along with their freedom of expression were kept absolutely confidential. The recorded data was subjected to suitable statistical tests to obtain p values, mean and other statistical parameters. P values less than 0.05 was considered as significant

Results

All the recorded data were arranged in logical manner and subjected to suitable statistical analysis using SPSS statistical package for the Social Sciences version 21 for Windows. A total of 200 subjects were included in the present study. All the patients were divided into 5 study groups depending upon their age ranges. Maximum patients belonged to the age group of 46 to 55 years (Graph 1 & Table 3). 40 and 45 patients belonged to the age group of 25 to 35 years and 36 to 45 years respectively. Significant results were obtained while comparing the mean knowledge score of the subjects divided on the basis of their age (P-value < 0.05) (Table 2). Males had significantly more knowledge of CKD in comparison to females (P- value < 0.05) (Table 2). We also observed an increase in the knowledge of subjects in relation to CKD with a corresponding increase in the level of education of the subjects (P- value < 0.05) (Table 2). Most of the subjects had score of two followed by score zero and score one (Graph 2). Table 3 illustrates about patients distribution according to age groups: Evaluation of level of significance using ANOVA test. Fundamental statistical description with level of significance evaluation using Pearson Chi-Square Test revealed significant Level of Significance (p value) for question no 2, 3 and 5 (Table 4).



Graph 1: Demographic details of the subjects

Table 1: List of questionnaires used in the present study

Question No.	Question
1.	Have your ever heard of CKD
2.	Information source – Family/ Friend
3.	Information source – Newspaper
4.	Information source – Internet
5.	Information source – Television
6.	Information source – Medical Personal
7.	Information source – Health campaign

Table 2: Comparison of mean knowledge score among subjects of different groups

Parameter		Mean Knowledge score	p- value
Age group (years)	25- 35	2.81	0.05*
	36- 45	2.70	
	46- 55	1.80	
	56- 65	2.90	
	65 and above	1.95	
Gender	Male	2.93	0.03*
	Female	1.99	
Education status	Illiterate	1.52	0.01*
	Primary	1.99	
	Secondary	2.30	
	Graduation	2.90	
	Post –graduation	3.43	

*p<0.05 significant

Table 3: Patients distribution according to age groups: Evaluation of level of significance using ANOVA test

Patients distribution according to age groups						
Group	Age Range	n=200	Mean	SD	P value	
I	25- 35 Yrs	40	3.54	1.450	0.000*	*Significant
II	36- 45 Yrs	45	2.23	1.540		
III	46- 55 Yrs	50	3.67	2.174		
IV	56- 65 Yrs	35	2.24	2.165		
V	65 Yrs and above	30	3.74	2.240		

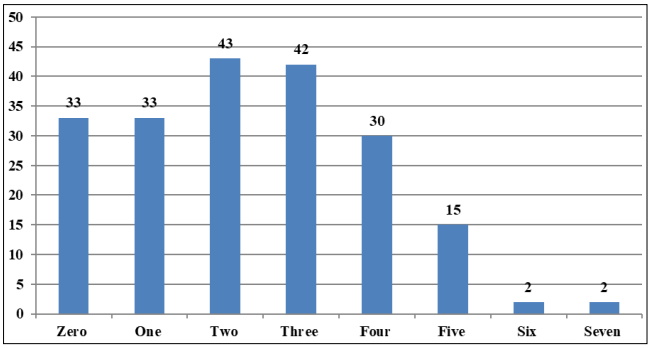
*p<0.05 significant

Table 4: Fundamental statistical description with level of significance evaluation using Pearson Chi-Square Test

Question No.	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	Level of Significance (p value)
1	2.53	0.252	0.160	1.96	2.433	1.0	0.086
2	2.76	0.264	0.000	1.96	2.242	2.0	0.030*
3	2.53	1.346	0.078	1.96	2.498	1.0	0.030*
4	2.98	0.434	0.035	1.96	1.556	1.0	0.080
5	2.23	0.276	0.025	1.96	2.550	3.0	0.000*

6	1.57	0.352	0.029	1.96	2.463	1.0	0.435
7	1.38	0.132	0.016	1.96	1.231	1.0	0.341

*p<0.05 significant



Graph 2: Total score on knowledge of CKD in all the Patients

Discussion

Chronic kidney disease (CKD) is an important and common non-communicable condition globally. Chronic Kidney Disease (CKD) is becoming a major health concern worldwide. For many patients, CKD is associated with substantial morbidity and mortality. Diabetes and hypertension are two major risk factors for CKD.[9-11]Since the initial stages of CKD can be asymptomatic, early disease detection is difficult. In undiagnosed and untreated individuals CKD may gradually progress to End Stage Renal Disease (ESRD), the terminal stage of CKD when costly Renal Replacement Therapy (RRT) via dialysis or renal transplantation becomes necessary to sustain the patient's life.[12] Under the light of above evidence, we planned the present study to assess the knowledge of outpatients in relation to CKD. In the present study, we observed that illiterate subjects and females had comparatively lower level of knowledge in relation to CKD (Table 2). Roomizadeh P *et al* introduced a model of public education program with the purpose of reducing the incidence of CKD in high-risk groups and thereby decreasing the economic burden of CKD in Iran.[13] This cross-sectional study was conducted on world kidney day 2013 in Isfahan, Iran. Self-administered anonymous questionnaires evaluating the knowledge of CKD and its risk factors were distributed among subjects who participated in a kidney disease awareness campaign. Chi-square test and logistic regression analysis were used to examine the differences in the level of knowledge across different socio-demographic groups. The questionnaires were completed by 748 respondents. The majority of these respondents believed that "pain in the flanks" and "difficulty in urination" was the early symptoms of CKD. Roughly, 10.4% knew that CKD could be asymptomatic in the initial stages. Only 12.7% knew diabetes and 14.4% knew hypertension was a CKD risk factor. The respondents who had a CKD risk factor (i.e. diabetes and/or hypertension) were significantly more likely than respondents without CKD risk factor to select "unmanaged diabetes" [Odds Ratio (OR)= 2.2, Confidence Interval (CI) (95%): 1.4–3.6] and "unmanaged hypertension" as "very likely to result in CKD". No more than 34.6% of all respondents with diabetes and/or hypertension reported that their physician has ever spoken with them about their increased risk for developing CKD. The knowledge of Iranian population about CKD and its risk factors is low. Future public health education programs should put efforts in educating Iranian community about the asymptomatic nature of CKD in its initial stages and highlighting the importance of regular renal care counselling. The high-risk individuals should receive tailored education and be encouraged to adopt lifestyle modifications to prevent or slow the progression of CKD. Wright JA *et al* calculated survey reliability using the Kuder-Richardson-20 coefficient, and established construct validity by testing a priori hypotheses of associations between the survey and patient characteristics. They descriptively analyzed survey responses and applied linear regression analyses to evaluate associations with patient characteristics. Health literacy was measured using the Rapid Estimate of Adult Literacy in Medicine. Participants median age was 58 (25th-75th percentile, 46–68) years, 83% were White, 18% had limited literacy, and 77% had CKD Stages 3–5. The 28-question knowledge survey had good reliability (KR-20=0.72), and mean (SD) knowledge score was 66% (15%). In support of construct validity of our knowledge survey, bivariate analysis shows that scores are associated with age, formal education, health literacy, kidney education class participation, knowing someone else with CKD, and awareness of one's own CKD diagnosis. Findings were similar in adjusted analyses. For patients with CKD, this kidney disease knowledge survey (KiKS) is reliable and valid, and identifies areas of and risk factors for poor kidney knowledge [14]. Plantinga LC *et al*. analysed the trends in awareness of general population in relation to CKD. The impact of recent guidelines for early detection and prevention of chronic kidney disease (CKD) on patient awareness of disease and factors that might be associated with awareness have not been well described. Awareness rates were assessed in 2992 adults (age, > or =20 years) with CKD stages 1 to 4 from a nationally representative, cross-sectional survey (National Health and Nutrition Examination Survey 1999-2004). Awareness of CKD was defined by an answer of yes to "Have you ever been told you have weak or failing kidneys?" Potential predictors of awareness included demographics, access to care, and clinical and lifestyle factors, which were assessed by standardized interviewer-administered questionnaires and physical examinations. We examined independent associations of patient characteristics with awareness in those with CKD stage 3 (n = 1314) over 6 years using multivariable logistic regression. Having proteinuria (odds ratio, 3.04, diabetes, and hypertension and being male were all statistically significantly associated with greater awareness among persons with CKD stage 3 after adjustment. Chronic kidney disease awareness increased almost 2-fold for those with CKD stage 3 over recent years but remains low. Persons with risk factors for CKD (proteinuria, diabetes, hypertension, and male sex) were more likely to be aware of their stage 3 disease. Renewed and innovative efforts should be made to increase CKD awareness among patients and health care providers [15].

Conclusion

Lower level of knowledge exists among patients attending the outpatient clinics. Hence; proper measures should be taken by the health care societies for increasing the awareness regarding this pathology. Furthermore, all of the

drawn inferences of this study should be considered judiciously. Authors expect some other similar large-scale studies to be conducted that can further establish certain authentic guidelines in this prospective.

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