ORIGINAL ARTICLE

Awareness of Chronic Kidney Disease, Medication, and Laboratory Investigation among Tertiary Care Hospitals in Karachi

SYED TAJAMMUL ALI[1], AMANI AMIR[2], FARZANA ADNAN[3], FARYA MOON[4], SADIQA ANWAR[5]
[1]Senior Registrar Nephrology Liaquat National Hospital and Medical College Karachi
[2]Senior Registrar Naimat Begum Hamdard University Hospital
[3]Assistant Professor Nephrology Liaquat National Hospital and Medical College
[4]Consultant Nephrologist Karachi Institute of Kidney Diseases
[5]Resident Paediatrics Ziauddin University Hospital and Medical College
Correspondence to: Syed Tajammul Ali, Email: syedtajammulali@yahoo.com

ABSTRACT

Introduction: Chronic kidney disease (CKD) continues to remain high globally, up to 13.4% by one estimate.
Objectives: The main objective of the study is to find the awareness of chronic kidney disease, medication, and laboratory investigation in different tertiary care hospitals in Karachi, Pakistan.
Material and methods: This cross-sectional study was conducted in Naimat Baigum hospital and different tertiary care hospitals in Karachi, Pakistan. The data was collected with the permission of ethical committee of hospital. Informed consent was taken from all the selected patients. The data was collected through a designed questionnaire which include all the basic and demographic data.
Results: The data was collected from 1000 patients of both genders. The mean age range was 45±5.67 years. The median age, blood pressure, blood urea nitrogen, serum creatinine and urine specific gravity were presented in table 01. Patients with CKD had significantly lower hemoglobin, and higher reticulocyte counts, CRP and inflammation also present in patients with CKD.
Conclusion: It is concluded that awareness about CKD in patients were low and its prevalence continues to remain high and is likely to increase globally.
Keywords: CKD, Patients, Nephrology, CRP, BUN

INTRODUCTION

Chronic kidney disease (CKD) continues to remain high globally, up to 13.4% by one estimate. Although the number, geographic distribution, size, and quality of the studies examining CKD prevalence and incidence have increased over the past decade, the global capacity for CKD surveillance is still far less developed than that for hypertension, diabetes, and cardiovascular disease [1]. Estimating CKD prevalence is constrained by inadequate standardization of serum creatinine and urine albumin assays, heterogeneity in study designs, lack of national registries in many countries, incomplete adoption of disease classification guidelines, and inconsistent use of evidence-based equations for estimating glomerular filtration rate [2].

Chronic kidney disease (CKD) is a leading cause of morbidity and mortality worldwide. It is related to several unfavourable symptoms and comorbidities. The goal of CKD clinical management, including blood pressure, glycemic regulation, diet, and lifestyle changes, is to preserve renal function alongside treatment and prevention [3]. The therapeutic goals assess various patient clinical needs with the highest being the regular drug burden for all chronic conditions. However, therapeutic objectives are difficult and non-compliance among patients is high. Furthermore, in the event of non-adherence, ways to enhance self-management were ultimately shown to be associated with a high risk of causal death [4].

In patients with CKD, the GFR (glomerular filtration rate) decreases, and/or there are urinary or structural problems in the renal system. It is a progressive condition characterized by a decrease in kidney function of lower than 60 mL/min/1.73 m^2 [5]. CKD is a major irreversible, gradual impairment in kidney function in which the body's ability to maintain metabolic fluid and electrolyte balance fails. Renal function regulates blood composition and volume as well removes metabolic wastes by urination, which helps to maintain bodily acid/base balance. In such cases, electrolyte imbalance may necessitate dialysis [6]. Several countries have listed CKD as one of the top five causes of mortality in 2015, according to the Global Burden of Disease report. In Pakistan, prevalence of it is reported to be in between 12.5% to 31.2%. CKD is becoming a considerable issue, as the incidence and prevalence of end-stage kidney disease (ESKD) have steadily increased over the last three decades [7].

Continuous therapeutic interventions and healthy lifestyle measures, such as appropriate nutrition, medications, and physical activity, are required for the well-being of patients affected by CKD [8]. To determine whether a treatment was effective, healthcare professionals (HCPs) and patients have traditionally relied on laboratory tests or subjective changes in the status of the patient's condition. "Soft" metrics are those that focus on qualitative objective measurement. "Hard" metrics employ subjective data and measurable data to evaluate a patient's concern [9]. On the other hand, the emotional well-being, level of comfort, quality of life (QoL), and knowledge and awareness of patients are frequently overlooked when compiling these "hard" metrics even though these are significant factors affecting therapeutic success [10].
Objectives: The main objective of the study is to find the awareness of chronic kidney disease, medication, and laboratory investigation in different tertiary care hospitals in Karachi, Pakistan.

MATERIAL AND METHODS

This cross-sectional study was conducted in Naimat Baigum hospital and different tertiary care hospitals in Karachi, Pakistan.
Inclusion criteria
- Both male and female patients
- Age > 18 years
- Patients with confirmed diagnosis of CKD

Exclusion criteria
- Patients with acute kidney injury (AKI) were excluded in this srudy.
- Those who do not want to participate in the study

Data Collection: The data was collected with the permission of ethical committee of hospital. Informed consent was taken from all the selected patients. The data was collected through a designed questionnaire which include all the basic and demographic data. Clinical profile of patients and data related to BUN, Creatinine, history of diseases, duration of the diseases and stage of CKD was also assessed. All patient enrolled in this study had at least one elevated creatinine level of 1.4 mg/dL or more either on initial visit or follow up. A quantitative questionnaire consisting of questions about demographic information (age, gender, education level, and type of patient), clinical profile of the patient (duration of the disease, co-morbidities, lifestyle factors, and CKD stage), and

questions related to the knowledge and awareness of CKD medications and laboratory tests was used.

Statistical analysis: The data was collected and analyzed using SPSS version 20. All the quantitative values like age, gender, diseases time were represented as mean and standard deviation.

RESULTS

The data was collected from 1000 patients of both genders. The mean age range was 45±5.67 years. The median age, blood pressure, blood urea nitrogen, serum creatinine and urine specific gravity were presented in table 01. Patients with CKD had significantly lower hemoglobin, and higher reticulocyte counts, CRP and inflammation also present in patients with CKD.

Table 1: Laboratory investigation of Selected Patients

Parameter	Mean ± SEM	Range/%
Gender (Male:Female)	40:60	–
Hemoglobin (g/dL)	9.2 ± 0.12	7.0–13
Reticulocyte %	9.2 ± 0.57	2.4–24.7
C-reactive protein (mg/L)	2.4 ± 0.73	0.3–28.4
Blood pressure (Systolic)	113 ± 1.4	96–157
Blood pressure (Diastolic)	63.6 ± 0.92	46–96
Urine albumin (mg/g creatinine)	132.4 ± 60.3	11.33–5145
Urine Sp. Gravity	1.011 ± 0.0003	1.0–1.03
Blood urea nitrogen (mg/dL)	23.45 ± 0.57	20–60
Serum creatinine (mg/dL)	2.78 ± 0.03	1.4-5.0

Most items have no strong association in case of stage, duration of CKD, and patient type. All items were highly associated with education level except for the statement corresponding to the awareness regarding salt usage. Higher level of education showed good awareness for most responses.

Table 2: Awareness regarding CKD in selected patients

Item	Response	
	Yes (n)	No and Don't Know (n)
Do you know the importance of exercise?	450	550
Do you know how to contact healthcare?	289	711
Do you know the role of medicines?	325	675
Do you know the prognosis of diseases?	99	901
Do you know about kidney functions?	489	511

Table 3: Management regarding CKD in selected participants

Item	Response	
	Yes (n, %)	No (n, %)
Do you know how to control your blood pressure (BP)?	259 (25.9%)	741 (74.1%)
Did you know that a person may lead a normal life with one healthy kidney?	365 (36.5%)	635 (63.5%)
Do you know about kidney function?	120 (12%)	880 (88%)
Do you know the symptoms of progression of diseases?	290 (29%)	710 (71%)
Do you know the brand names and usages of your medicines?	127 (12.7%)	873(87.3%)
Do you know about medication of CKD?	128 (12.8%)	872 (87.2%)
Do you know about medicines which directly effect on kidney?	161 (16.1%)	839 (83.9%)
Do you know herbal and homeopathic medicines are dangerous for kidneys?	191 (19.1%)	809 (80.9%)
Do you know how much salt you should be using daily?	77 (7.7%)	923 (92.3%)
Do you know what laboratory examinations you should regularly check to track your disease condition?	206 (20.6%)	794 (79.4%)

DISCUSSION

Pakistan has a gross population of 144 mllions with majority of population (65%) living in rural areas. The number of patients with chronic renal failure in Pakistan is continuously increasing with an estimated annual incidence of > 100 new cases of end-stage renal disease (ESRD) per million population [11-13]. There is still very limited data available on the spectrum of renal diseases leading to chronic renal failure in Pakistan. Chugh from India found chronic glomerulonephritis (37%) as a number one cause of ESRD in their population followed by diabetic nephropathy (14%), chronic tubulointerstitial nephritis (14%) and nephrosclerosis (13%) [14]. Agarwal from the same country looked into the spectrum of renal disease in their adult population and reported chronic glomerulonephritis as the prime cause of renal failure (49.4%) followed by diabetic nephropathy [15]. Naicker from South Africa reported chronic glomerulonephritis as the commonest cause of CRF (25%) followed by hypertension (20%) leading to ESRD [16]. In all these studies, the criteria for diagnosing glomerular diseases were not mentioned and there may be an overestimation of the true incidence of primary glomerular diseases. In this analysis of pre-dialysis patients, the cause was unknown in a high proportion of patients, a finding that is similar to two other studies from developing countries where etiology of CRF was unknown in a substantial number of cases [17]. This may reflect the lack of awareness of medical problems, lack of medical facilities in rural areas and/or delay in referral before arriving to the specialist physician. The lower incidence of glomerular diseases in our population could be due to the fact that only biopsy-proven cases or cases with very suggestive presentation of chronic glomerular diseases were included [18]. However, the possibility of misclassifying patients with chronic glomerular diseases into hypertensive nephrosclerosis or including them in the group with "unknown causes" cannot be excluded [19].

Reduced prevalence of CKD and albuminuria is linked to a balanced dietary pattern rich in vegetables, fruit, legumes, nuts, whole grains, fish, and low-fat dairy as well as the decreased intake of red and processed meats, sodium, and sugar-sweetened beverages [20]. In the present healthcare system, patients are usually told about the dietary risks after every checkup, and the information about diet risks are disseminated through all HCPs multiple times [21]. This could be a potential reason for our study results, as it showed good awareness of patients regarding dietary risks, which included unhealthy dietary patters, food containing high-quality protein, and a list of foods which should be avoided. Awareness of patients regarding laboratory examinations and understanding of these reports were shown to be poor; the majority of the patients were not aware about which laboratory tests they should check regularly [22].

CONCLUSION

It is concluded that awareness about CKD in patients were low and its prevalence continues to remain high and is likely to increase globally. But according to our results awareness regarding CKD in Karachi patients becomes very low and, in the region, has limited understanding about the laboratory investigations for CKD. Medication agencies and the media may also play important roles to inform the public about kidney issues.

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