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Original Research Article

Socio-Demographic Status of Patients with Chronic Kidney Diseases

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Abstract

Background: Chronic kidney disease (CKD) is a non-communicable disease that includes a range of different physiological disorders that are associated with abnormal renal function and progressive decline in the glomerular filtration rate (GFR). Chronic kidney disease (CKD) is the 16th leading cause of years of life lost worldwide. Like other developing countries, the prevalence of chronic disease is increasing trends in Bangladesh. Prior conception regarding the socio-demographic status of patients with chronic kidney diseases may be helpful for respective health professionals and researchers. *Aim of the study:* This study aimed to evaluate the socio-demographic status of patients with chronic kidney diseases. *Methods:* This was a descriptive cross-sectional study that was conducted in the Department of Medicine and Nephrology, Dhaka Medical College & Hospital (DMCH), Dhaka, Bangladesh during the period from January March 2018 to September 2020. A total of 150 diagnosed cases of CKD were enrolled in this study as a study population. Properly written consent was taken from all the participants before data collection. All data were processed, analyzed, and disseminated by using MS Excel and SPSS version 23.0 program as per necessity. ***Results:*** In this study, male participants were dominant in number and the male-female ratio was 1.7:1. The mean age of the respondents was 53.31±10.28 years. The highest number of our participants were unemployed 65(43.3%) and the majority of our respondents 106(70.7%) were married. Among the total participants 83(55.3%) patients were with hypermagnesemia whereas 10(6.7%) with hypomagnesemia. In this current study, among the total respondents 51(34%) had CKD stage 5, 42(28%) had CKD stage 4, 38(25.3%) had CKD stage 3, 14(9.4%) had CKD stage 2 and only 5(3.3%) had CKD stage 1. *Conclusion:* As per the findings of this study, we can conclude that male people are prone to chronic kidney diseases (CKD). Early investigation and proper treatment can decrease the occurrence of CKD as well as the mortality and morbidity of such theses.

Keywords: Socio-demographic status, Chronic kidney diseases (CKD), Magnesium, Calcium.

INTRODUCTION

Chronic kidney disease (CKD) is a non-communicable disease that includes a range of different physiological disorders that are associated with abnormal renal function and progressive decline in the glomerular filtration rate (GFR). Chronic kidney disease has become a global epidemic with an estimated prevalence of 5-15% [1] worldwide with 13.4% in stages 1-5 and 10.6% in stages 3-5 [2]. CKD is defined as a reduced glomerular filtration rate, increased urinary albumin excretion, or both [3]. Chronic kidney disease is said to be a modern-day global epidemic and now it is recognized as a public health issue [4]. CKD can be caused by a variety of conditions and evidence suggests that, worldwide HTN and diabetes are the two major causes of it [5]. Indeed, it has been recently estimated that the age-adjusted incidence rate of end-stage renal disease (ESRD) in India, the neighboring country of Bangladesh is 229/million population, and >100,000 new patients enter renal replacement programs annually in India [6]. Socio-demographic factors such as age, education, gender, residence, and socioeconomic factors also appear to have a significant role in the development of CKD [7]. In India the major causes of chronic kidney disease were diabetic nephropathy

(31.2%) and hypertensive nephrosclerosis (12.8%) [8]. The burden of the cost of treatment of CKD highlights the role of socioeconomic status and its direct relation to the progression of the disease condition. Patients with chronic kidney disease are very prone to develop the complications such as pericarditis, anemia, cardiovascular diseases, or renal osteodystrophy and are also at high risk for progression to end-stage renal disease (ESRD) or even renal failure. Those can be prevented or at least delayed by early detection and treatment with population-based screening [9]. Kidney diseases have become the ninth leading cause of death in the United States, imposing a financial strain of 47.5 billion dollars in 2010 alone [10, 11]. In Asia, the prevalence of CKD varies from 10%-18% [12], which is quite similar to the figures seen in other regions of the world. However, as Asia is largely populated by developing countries with nascent healthcare systems, there is a dearth of research and data. It is estimated that a large number of cases go unreported. As a result, the exact disease burden remains unclear [12]. The main objective of this study was to evaluate the socio-demographic status of patients with chronic kidney diseases.

METHODOLOGY

This was a descriptive cross-sectional study conducted in the Department of Medicine and Nephrology, Dhaka Medical College & Hospital (DMCH), Dhaka, Bangladesh during the period from January March 2018 to September 2020. A total of 150 diagnosed cases of Chronic kidney disease (CKD) were enrolled in this study as the study population. The study was approved by the ethical committee of the mentioned hospital. Proper written consent was taken from all the participants before data collection. The whole intervention was conducted following the principles of human research specified in the Helsinki Declaration [13] and executed in compliance with currently applicable regulations and the provisions of the General Data Protection Regulation (GDPR) [14]. As per the inclusion criteria of this study, only diagnosed cases of CKD for at least 3 months, CKD patients who did not get dialysis as renal replacement therapy and who were willing to participate were included. On the other hand, according to the exclusion criteria of this study, patients with CKD receiving any medications like amphotericin, furosemide, cisplatin, or aminoglycosides, and pregnant women were excluded. All the demographic and clinical data of the participants were recorded. A predesigned questionnaire was used in data collection. All data were processed, analyzed, and disseminated by using MS Excel and SPSS version 23.0 program as per necessity.

RESULTS

In this study, among the total of 150 participants, 64% were male whereas the rest 36% were female. So, male participants were dominating in number and the male-female ratio was 1.7:1. The mean ±SD age of the respondents was 53.31±10.28 years. The highest number of participants were from >60 years age group who contributed 32.7% of the total. The highest number of our participants were unemployed who contributed 43.3%. Besides these, 21.3%, 16%, 10%, and 9.3% were housewives, businessmen, service holders, and day laborers respectively. The majority of our respondents were married who were more than 70%. The unmarried patient was 10% and the rest 19.3% were a widow. In our study, more than 50% of patients were with hypermagnesemia whereas 6.7% with hypomagnesemia. In this study, among the respondents, 34% had CKD stage 5, 28% had CKD stage 4, 25.3% had CKD stage 3, 9.3% had CKD stage 2 and only 3.3% had CKD stage 1. In analyzing the clinical features of our participants, we observed that 80% of respondents had nausea, 74.7% had fatigue and weakness, 65.3% had oliguria and 50.7% had noticeable edema. As comorbidities, in 69.3% of cases hypertension and 40.7% of cases diabetes were found. In this study, as the mean serum magnesium level was 2.68±0.81 mg/dl, urinary magnesium level was 38.91±13.29 mg/day, serum sodium was 140.90±2.86 mEq/L, serum potassium was 4.81±0.83 mEq/L, calcium was 8.71±0.71 mg/dl, phosphate was 5.07±0.70 mg/dl, S. creatinine was 9.72±4.08 mg/dl and level of hemoglobin was 10.94 ±1.23 gm/dl.

Table 1: Distribution of the study patients by age (N=150)

Age in years	Frequency (n)	Percentage (%)
20-30 yrs.	4	2.7%
31-40 yrs.	19	12.6%
41-50 yrs.	24	16.0%
51-60 yrs.	54	36.0%
>60 yrs.	49	32.7%
Mean ± SD Age	53.31±10.28	

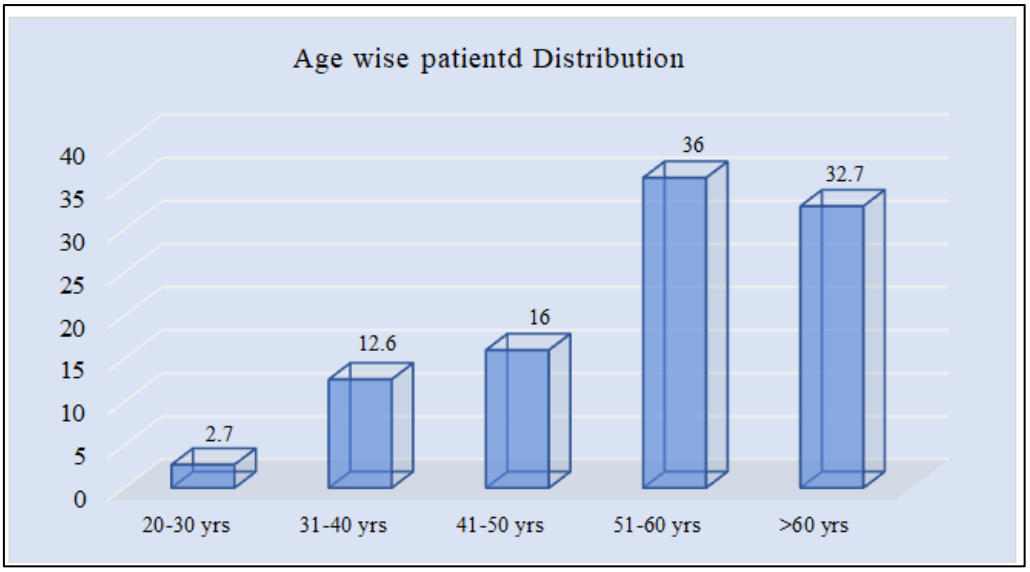

Figure I: Bar chart showed age-wise patient distribution, (N=150)

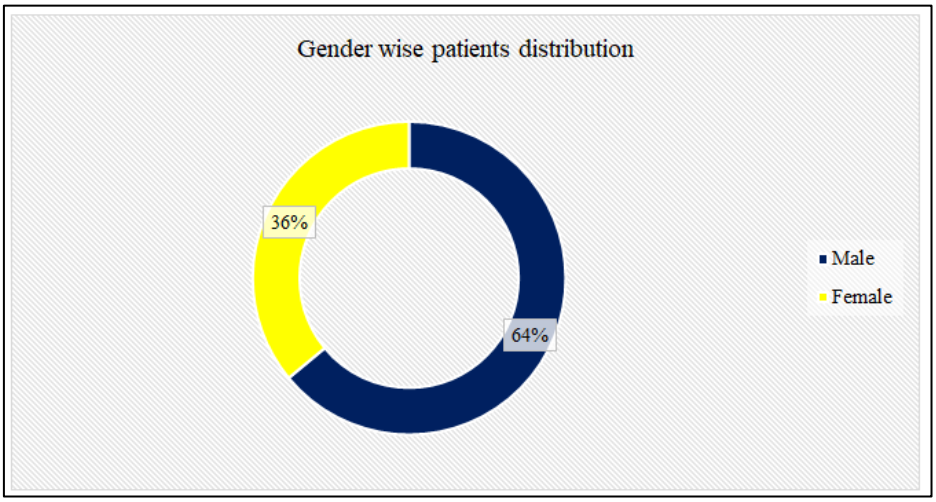

Figure II: Ring chart showed gender-wise patient distribution, (N=150)

Table 2: Distribution of the study patients by occupation, (N=150)

Occupation	Frequency (n)	Percentage (%)
Unemployed	65	43.3%
Housewife	32	21.3%
Business	24	16.1%
Service holder	15	10.0%
Day laborer	14	9.3%

Table 3: Distribution of the study patients by marital status, (N=150)

Marital status	Frequency (n)	Percentage (%)
Married	106	70.7%
Unmarried	15	10.0%
Widow	29	19.3%

Table 4: Distribution of the patients by serum magnesium level, (N=150)

Serum magnesium	Frequency (n)	Percentage (%)
Hypomagnesemia	10	6.7%
Normal	57	38.0%
Hypermagnesemia	83	55.3%

Table 5: Distribution of the patients by stage of CKD, (N=150)

Stage	Frequency (n)	Percentage (%)
Stage 1 (GFR≥90)	5	3.3%
Stage 2 (GFR 60-89)	14	9.4%
Stage 3 (GFR 30-59)	38	25.3%
Stage 4 (GFR 15-29)	42	28.0%
Stage 5 (kidney failure)	51	34.0%

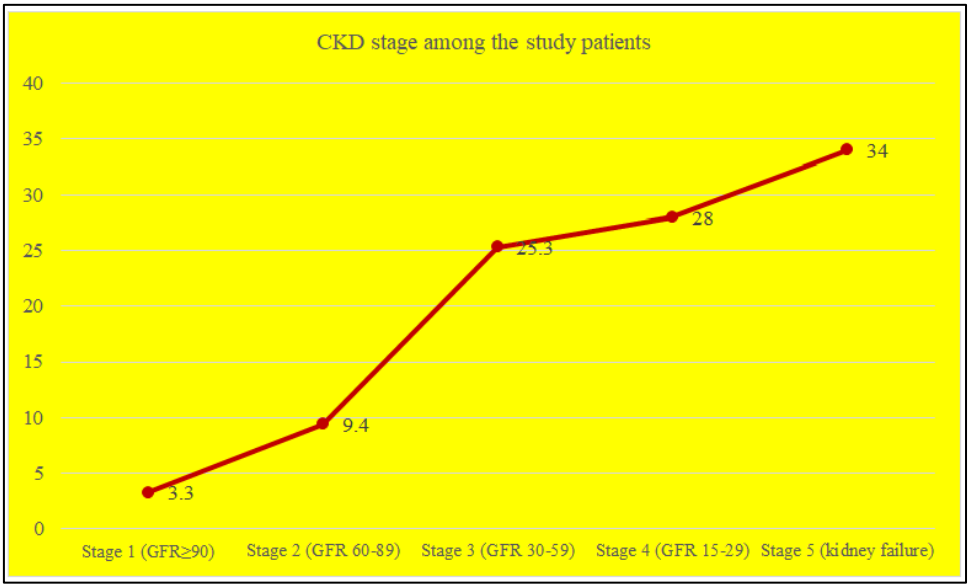

Figure III: Line chart showed the stage of CKD of the study patients. (N=150)

Table 6: Distribution of the respondents according to clinical features, (N=150)

Clinical feature	Frequency (n)	Percentage (%)
Nausea	120	80.0
Fatigue and weakness	112	74.7
Oliguria	98	65.3
Oedema	76	50.7
Fever	42	28%
Confusion	27	18%

Table 7: Distribution of the respondents according to comorbidities, (N=150)

Clinical feature	Percentage (%)	Percentage (%)
Hypertension	104	69.3
Diabetes	61	40.7

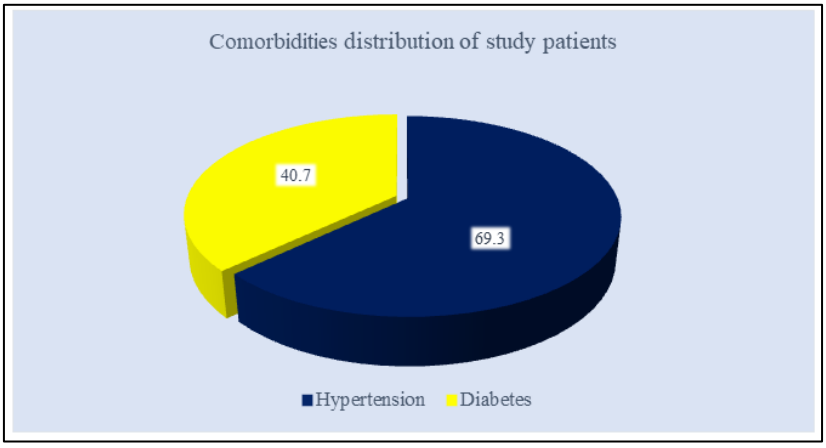

Figure IV: Pie chart showed comorbidities distribution of study patients, (N=150)

Table 8: Mean value of investigations among the respondents, (N=150)

Investigation	Mean ±SD
Serum Magnesium (mg/dl)	2.68±0.81
Urinary Magnesium (mg/day)	38.91±13.29
Serum Sodium (mEq/L)	140.90±2.86
Serum Potassium (mEq/L)	4.81±0.83
Calcium (mg/dl)	8.71±0.71
Phosphate (mg/dl)	5.07±0.70
Creatinine (mg/dl)	9.72±4.08
Haemoglobin (gm/dl)	10.94±1.23

DISCUSSION

This study aimed to evaluate the socio-demographic status of patients with chronic kidney diseases. In this study, total number of respondents was 150. Among them 64% were male and 36% were female. The previous 2 studies by [15, 16] also found male predominance. The mean age of the respondents was 53.31±10.28 years. A previous study [17] observed the majority of patients were in the age group of >60 years. The mean age of the patients was close to that study. Another study by [15] observed, the mean age was 49.5±12.7 years. In another previous study, the age range was between 18 and 70 years but the mean age was 37±11. In this study, 34% of respondents had CKD stage 5, 28% had CKD stage 4, 25.3% had CKD stage 3, 9.3% had CKD stage 2 and only 3.3% had CKD stage 1. A previous study by [16] observed, the majority of the patients were in stage 3 CKD followed by stage 2 and stage 1 CKD. Another study by Kanbay *et al*., [18] found that most of the respondents were in stage 5 CKD followed by stage 4, stage 3, stage 2, and stage 1 CKD which was similar to this study. Another previous study [17] also observed that majority of patients were in stage 5 followed by stage 4, stage 3, stage 2 and stage 1. Most of the studies found a smaller number of respondents in stage 1 and stage 2. Reason behind this includes in case of stage 1 and stage 2 CKD, diagnosis is incidental, as in majority of cases clinical features for CKD first appear in stage 3. In this study, about 80% respondents had nausea, 74.7% had fatigue and weakness, 65.3% had oliguria, 50.7% had oedema, 28% had fever, 18% had confusion, 69.3% had hypertension and 40.7% had diabetes. In a previous study [17] it was found that, majority of patient presented with nausea followed by vomiting. The other clinical presentation was similar to this study. In this study, a smaller number of patients was found with vomiting. They also observed majority of patients were having hypertension followed by diabetes mellitus [17]. In a previous study they also observed the risk for developing CKD was almost two-fold higher in subjects with high SBP and high RBS [16]. All the findings of this study may be helpful in further similar studies and in the treatment arena of CKD.

LIMITATION OF THE STUDY

This was a single centered study with small sized samples. Moreover, the study was conducted at a very short period of time. So, the findings of this study may not reflect the exact scenario of the whole country.

CONCLUSION & RECOMMENDATION

As per the findings of this study, we can conclude that, male people are prone to chronic kidney diseases (CKD). Early investigation and proper treatment can decrease the occurrence of CKD as well as mortality and morbidities of such theses. For getting more specific results, we would like to recommend for conducting similar more studies in several places with larger sized samples.

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