Original Article

Clinical profile of chronic kidney disease patients at tertiary care hospital

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Abstract

Introduction: "Bones can break, muscles can atrophy, glands can loaf, and even the brain can go to sleep without immediate danger to survival .But should kidneys fail…Neither bone, muscle, gland, nor brain could carry on. **Aims and Objectives:** To study Clinical Profile of Chronic Kidney Disease Patients at Tertiary Care Hospital **Methodology:** The present study is carried out at Rural Tertiary Health Care Centre, over a period of 2 years from December 2013 to November 2015. Hospital based observational study 80cases diagnosed as having Chronic Kidney Disease admitted to medicine department at Rural Tertiary Health Care Centre during the study period carried out in October 2013 to October 2015. Patient with Chronic Kidney Disease in the age group of 18 years to 65 years as per NKF-KDOQI (National Kidney Foundation –Kidney Dialysis Outcome Initiative) 2002 criteria.**Result:** Among 80 cases of CKD, there were 58 (72.50%) male patients and 22 (27.50%) female patients. In this study, it was seen that maximum no.i.e.64 (80.00%) of patients presented with oliguria Anaemia was the most common feature, found in 76 (95.00%) patients. Pitting type of oedema on lower extremities was found in 58 (72.50%) cases. Diabetes malites is the most common cause of CKD found in 32 (40.00%) cases. **Conclusion:** Prevalence of chronic kidney disease is rising especially in the younger age groups, Males were more affected than females, Diabetes mellitus and systemic hypertension were the most common etiological risk factor for the development of chronic kidney disease

Key Words: Chronic Kidney Disease (CKD), Glomerulonephritis, Diabetes Mellitus (DM), Hypertension (HTN).

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INTRODUCTION

"Bones can break, muscles can atrophy, glands can loaf, and even the brain can go to sleep without immediate danger to survival .But should kidneys fail……Neither bone, muscle, gland, nor brain could carry on."[1]

This statement underlines the importance of kidney to our life, proper functioning of kidney is essential to maintain healthy body, because it filters blood, body fluids, and excretes waste products and maintains the body's state of homeostasis.[2] Due to sedentary life style, stress from daily living, lack of healthy activities and food habits etc, are fast contributing risk factors to develop some life threatening diseases, one among them is chronic kidney disease (CKD) involves progressive, irreversible loss of kidney function in which there is an either kidney damage or Glomerular Filtration Rate less than 60 ml /min for three months or longer.[3] Chronic Kidney diseases is a worldwide public health problem. In the United States, there is a rising incidence and prevalence of kidney failure, with poor outcomes and high cost. There is an even higher prevalence of earlier stages of chronic kidney disease. Increasing evidence, accrued in the past decades, indicates that the adverse outcomes of chronic kidney disease, such as kidney failure, cardiovascular disease, and premature death, can be prevented or delayed. Earlier stages of chronic kidney

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disease can be detected through laboratory testing. Treatment of earlier stages of chronic

Kidney disease is effective in slowing the progression toward kidney failure. Initiation of treatment for cardiovascular risk factors at earlier stages of chronic kidney disease should be effective in reducing cardiovascular disease events both before and after the onset of kidney failure. Unfortunately chronic kidney disease is "under- diagnosed" and "under-treated" in the United States, resulting in lost opportunities for prevention. One reason is the lack of agreement on a definition and classification of stages in the progression of chronic kidney disease. A clinically applicable classification would be based on laboratory evaluation of the severity of kidney disease, association of level of kidney function with complications, and stratification of risks for loss of kidney function and development of cardiovascular disease.[4]

Kidney disease is an important problem worldwide Kidney disease is defined as an health of an individual, which can occur abruptly, and either resolve or become chronic. CKD is a general term for heterogeneous disorders affecting kidney structure and function with variable clinical presentation, in part related to cause, severity and the rate of progression. The concept of CKD evolved after the recognition of the contribution of disordered kidney structure and function on the health of individuals across a wide range of severity. Earlier stages of kidney disease are often asymptomatic, are detected during the evaluation of comorbid conditions, and may be reversible. Rapidly progressive diseases may lead to kidney failure within months but most diseases evolve over decades, and some patients do not progress during many years of follow-up[5]. Data from the US population studies like the Third National Health and Nutrition Examination Survey (NHANES) and the Kidney Early Evaluation Programme (KEEP) show that US adult's population of 11-15.6% has CKD .The NHANES1994-1998 and 1999-2004 data shows an increase in prevalence from 10.03% to 13.07%.In the absence of a proper registry and paucity of population-based studies, exact prevalence of CKD in India is not known. Based on data from major tertiary care centers, the presumptive estimates of incidence of CKD in India are 100 per million population (p.m.p). CKD is emerging as a world public health problem. The World Health Report 2002 and Global Burden of Disease Project reports show that disease of the kidney and urinary tract contributes to the Global Burden of disease –with approximately 8, 50,000 deaths every year and 1,50,10,167 disability adjusted life years. Globally, they represent 12th cause of death and 17th cause of disability. Individuals with even the earliest signs of CKD are at increased risk of cardiovascular disease and may die long before they reach End Stage Renal Disease(ESRD)[6] Need For The Study :More and accurately but less poetically , human kidneys serve to convert more than 1700 liters of blood per day into about 1 liter of a highly specialized concentrated fluid called urine. In so doing the kidney excretes the waste products of metabolism, precisely regulates the body's concentration of water and salt, maintains the appropriate acid balance of plasma, and serves as an endocrine organ, secreting such hormones as erythropoietin, rennin, and prostaglandins. The physiologic mechanisms that the kidney has evolved to carry out these functions, kidney a high degree of structural complexity.[7]

Chronic disease have become a major cause of Global morbidity and mortality.4 out of 5 chronic disease deaths now occur in low and middle- income countries, In India the projected number of deaths due to chronic disease will rise from 3.78 million in 1990(40.4% of all deaths) to an expected 7.63 million in 2020(66.7%of all deaths).The CKD burden is increasing rapidly worldwide, at the end of 2004, 1,783,000 patients worldwide were receiving treatment for CKD of which 77% were on dialysis and 23% had a functioning renal transplantation (RT), and this number is increasing at a rate of 7% every year. The average incidence of ESRD in developing countries is 150 per million population(pmp).[8] National Health and Nutrition examination Survey (NHANES), which provided data on an adult unselected population, estimated that 4.7% of US adults had CKD stage -3. They also estimated that up to 11% of the general population (19.2%) has some degree of CKD. Similarly a study of 112,215 patients registered with general practices in greater Manchester, Kent and surrey, UK. Showed a prevalence of 4.9%.They also estimated that 5.9% million people may have stage-1 CKD with normal kidney function. In another study conducted by the Australian Diabetes, Obesity and Life style (AUSDIAB) on 10,949 patients, a prevalence of 11.2% of CKD stages 3-5 was found.[9] A very elegant study done in one of the central Indian towns of Bhopal by Modi and Jha suggested a crude incidence of CKD of 151 per million and age-adjusted incidence of 232 per million . What is also interesting to note is that the average age of the ESRD population in India is 47 years ,much younger than the data from the United State Renal Data System (USRDS), and that diabetes is present in 44% of the ESRD patients in India, which is similar to the rate in the developed world .There is also evidence that, because of lack of medical facilities ,poor control of risk factors, and delayed referral to the nephrologists ,there is much more rapid progression of CKD in the Indian population than in developed countries.[10]

METHODOLOGY

The present study is carried out at Rural Tertiary Health Care Centre, over a period of 2 years from December 2013 to November 2015. Hospital based observational study 80cases diagnosed as having Chronic Kidney Disease admitted to medicine department at Rural Tertiary Health Care Centre during the study period carried out in October 2013 to October 2015. Patient with Chronic Kidney Disease in the age group of 18 years to 65 years as per NKF-KDOQI (National Kidney Foundation –Kidney Dialysis Outcome Initiative) 2002 criteria, Patients with Chronic Kidney Disease with stage 3, stage 4 and stage 5 (based on eGFR values by Cockcroft and Gault Formula) were into study while Patients with acute renal failure**,** Patients with Benign Prostatic Hypertrophy and Obstructive Uropathy were excluded from the study. Patients presenting with potential symptom of chronic kidney disease were admitted to medicine wards/ICU. Patients were subjected to in all patients who satisfy selection criteria detailed proforma was utilized for data collection. Detailed history and clinical examination was done in all patients. Special stress was laid in the history on presenting complaints, history of Diabetes Mellitus, hypertension or ischemic heart disease, history of smoking, personality and lifestyle, alcohol consumption.

RESULT

Table 1: Distribution of cases according to age and sex

Age group	Males		Females	
	No of cases	Percentage	No of cases	Percentage
< 20	1	1.25	2	2.50
21-30	10	12.5	2	2.50
31-40	9	11.25	4	5.00
41-50	10	12.5	5	6.25
51-60	17	21.25	6	7.50
61-65	11	13.75	3	3.75
Total	**58**	**72.5**	**22**	**27.50**

Among 80 cases of CKD, there were 58 (72.50%) male patients and 22 (27.50%) female patients. The ratio of male to female was 2.63 i.e. males are 2.63 times more susceptible to CKD when compared to females.

Table 2: Table showing symptomatology in CKD patients

Symptoms	No of Cases	Percentage %
Oliguria	64	80.00
+Puffiness of face	62	77.50
Swelling of feet	58	72.50
Breathlessness	56	70.00
Nausea / Vomiting	54	67.50
Tingling / Numbness	40	50.00
Joint Pain	24	30.00
Convulsions	20	25.00
Hiccups	16	20.00
Abnormal Behavior	12	15.00

Table No. 10 shows presenting symptoms of patients in the present study. In this study, it was seen that maximum no.i.e.64 (80.00%) of patients presented with oliguria .Puffiness of face 62 (77.50%), swelling over feet 58 (72.50%) and breathlessness 56 (70.00%) were the next predominant symptom. Nausea and vomiting were present in 54 (67.50%) and tingling and numbness of extremities was complained by 40 (50.00%) patient. Joint pain 24 (30.00%), convulsion 20 (25.00%) and hiccups 16 (20.00%) were the other less common presenting symptom in this study. Abnormal behavior was the least common presenting symptom in the present study reported by 12 (15.00%) of cases.

Table 3: Table showing signs in CKD

Signs	No. of Cases	Percentage %
Anaemia	76	95
Pedal Oedema	58	72.5
Dyspnoea	56	70
HTN	52	65
Tachycardia	48	60
Raised JVP	28	35
Asterixis / Flaps	25	31.25
Icterus	9	11.25

The signs at the time of presentation in cases.Anaemia was the most common feature, found in 76 (95.00%) patients. Pitting type of oedema on lower extremities was found in 58 (72.50%) cases. Dysnoea on exertion was the next sign found in 56(70.00%).Systemic hypertension was found in 52 (65.00%) cases and tachycardia was seen in 48 (60.00%) cases. Jugular venous pressure was increased in 28(35.00%) cases suggestive of congestive cardiac failure. Asterixis was present in 25(31.25%) at the time of presentation. Icterus was the least common presenting sign in study subjects, found in 9 (11.25%) cases.

Table 4: Distribution of cases according to etiology

Factors	No. of Cases	Percentage %
DM	32	40.00
HTN	30	37.50
DM + HTN	22	27.50
Cystic Diseases	9	11.25
Glomerulonephritis	11	13.75
Others	7	8.75

Diabetes mellitus is the most common cause of CKD found in 32 (40.00%) cases. Next important cause of CKD is systemic hypertension seen in 30 (37.50%) patients. Both diabetes mellitus and systemic hypertension was seen in 22 (27.50%) cases. Various forms of Glomerulonephritis is the next important cause of CKD found in 11 (13.75%) cases. It includes primary glomerular diseases like focal segmental glomerulo-sclerosis and IgA nephropathy and secondary glomerular disease like diabetic nephropathy and lupus

nephritis. Congenital disease like polycystic kidney disease is responsible for 9 (11.25%) cases.Other rare causes including chronic tubule interstitial disease, reflux nephropathy, of etc. Accounts for 7 (8.75%) cases.

DISCUSSION

This study was designed as a hospital based observational study, carried out at a Rural Tertiary Health Care Centre, during period of December 2013 to November 2015. Study population included 80 cases, diagnosed as 'Chronic Kidney Disease' admitted to the intensive care unit or general ward during the study period.

Chronic kidney disease often progresses relentlessly to end stage renal failure, which with its profound manifestation on milieu interior of body is often the major cause of morbidity, if not mortality, for a pretty long period.

In this study the youngest patient was 18 years old and oldest was 65 years old, we found the maximum number of cases in the age group of 51-60 years. Many studies have shown that maximum number of cases of chronic kidney disease occurred in 5th and 6th decade of life. In this study the mean age of patient was 46.42 years. This correlates with observation made by A. K. Singh and U. N. Acharya *et al* (2013)[11]. Their study showed the mean age of chronic kidney disease patients is 45.22 years. Similarly Mohan M Rajaparkar, George T John and Ashok Kirpalani *et al* (2012) in their study found out that the mean age of chronic kidney disease is 50.1 years [12]. Modi G K and Jha V *et al* (2006) found the mean age of 47years of chronic kidney disease patients in their study[13].

In this study 72.5% patients were male and 27.5% were female. Male to female ratio in this study was 2.63 showing male predominance in this study. This correlates with the study done by M MRajapurkar, George T John and Ashok Kirpani *et al* (2012) who observed Male to Female ratio as 70:30 i.e. M:F = 2.33[12]. Similarly Ajay K Singh, Youssel M K, Bharari V Mittal *et al* (2013) found that male to female ratio was 1.22[11]. In the same way Modi G K and Jha V *et al* found out male to female ratio of 1.31 in their study[13]. Manwad *et al* (1988) also observed male predominance in this study of chronic renal failure with male to female ratio being 1.43:1[14]. Wing *et al* (1989) also observed male predominance in this study done In Europe where ratio was 1.4:1.

Symptomatology in CKD:

In this study Oliguria (80%) puffiness of face (77.5%) swelling over feet (72.5%). Breathlessness, tingling numbness was the predominant symptom similarly. Sharma *et al* (1994) and Guyton *et al* (1996) observed that patients of chronic renal failure presents with common symptoms like puffiness of face edema feet, dyspnea secondary to sodium and water retention[15]. Mark R Leffamme *et al* (2015) observed that peri-orbital puffiness, swelling over feet, breathlessness, nausea, vomiting, hiccups, bone pain, arthralgia as common symptoms of CKD.

Gastro-intestinal symptoms like nausea, vomiting (67.4%) and hiccups (20%) were observed in this study. Like the present study Kulkarni *et al* (1985) observed nausea in 100%, vomiting in 88.33% and hiccups in 52.9% cases in his study[16].

Etiology: Chronic kidney disease is the irreversible condition which progresses relentlessly leading sooner or later to the end stage renal failure. Once the stage of ESRD is reached, the etiology od underlying disease is difficult to determine. The diagnosis of this stage can be achieved by eliciting the history carefully, discovering co-morbid factors, utilizing imaging techniques, interpreting histological material and placing this in the context of probability derived from epidemiological data.

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