

## Evaluation of Demographic and Etiological Factors Among Chronic Kidney Disease Patients: An Institutional Based Study

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### ABSTRACT

**Introduction:** Chronic Kidney Disease (CKD) is becoming a worldwide health problem. There is an increasing incidence and prevalence of patients with kidney failure requiring replacement therapy, with poor outcomes and high cost. The aim of the current study was to evaluate demographic profile and etiological factors among chronic kidney disease patients admitted to a tertiary care centre who were clinically and laboratory proven cases of chronic kidney disease.

**Materials and Methods:** The present prospective study comprised of cases of chronic kidney disease admitted in Department of Medicine, Dr. N.D. Desai Faculty of Medical Science and Research, Nadiad, Gujarat, India. Selection of patients relied on clinically and laboratory proven cases of chronic kidney disease. All patients were investigated in form of routine laboratory investigations. The statistical operations were done through SPSS (Statistical Presentation System Software) and Graph pad for Windows.

**Results:** There were 64% male and 36% female patients suffering from chronic kidney disease. It showed that male patients were more involved in the chronic kidney disease. The etiological prevalence of the chronic kidney disease shows the higher prevalence of the Hypertension among these patients. The prevalence of age related factor also increased with the age. Second is the Lupus Nephritis, the auto immune disease causing the kidney disease. Membranous glomerulonephritis and

autosomal dominant poly cystic kidney disease also cause the chronic kidney disease in the decreasing order.

**Conclusion:** The present study concludes that male patients are more involved in the chronic kidney disease. The study found that there was higher prevalence of the hypertension in chronic kidney disease patients. The other prevalent causes revealed are age related factors, Lupus Nephritis membranous glomerulonephritis and autosomal dominant poly cystic kidney disease.

**Keywords:** Autoimmune Disease; Cardiovascular Disease; Chronic Kidney Disease; Hypertension.

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### INTRODUCTION

Chronic Kidney Disease (CKD) is becoming a worldwide health problem. There is an increasing incidence and prevalence of patients with kidney failure requiring replacement therapy, with poor outcomes and high cost. There is an even higher prevalence of patients in earlier stages of CKD, with adverse outcomes such as kidney failure, cardiovascular disease, and premature death.<sup>1</sup> In India the projected number of deaths due to chronic diseases 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).<sup>2</sup>

Patients with chronic kidney disease (CKD) share some of the predisposing risk factors and might be at increased risk for venous thromboembolism (VTE). The epidemiology of deep vein

thrombosis and pulmonary embolism (PE), collectively referred as venous thromboembolism (VTE) and risk factors for VTE include major surgery, trauma, cancer, obesity, diabetes, and hereditary predisposition.<sup>3</sup> Even those patients who do not progress to end-stage renal disease (ESRD) requiring dialysis or transplantation have an increased risk of death from heart and cerebrovascular disease from any cause. The presence of CKD, whether it is manifested by proteinuria or reduced glomerular filtration rate (GFR), is now considered as an independent risk factor for cardiovascular disease events (CVD) in the most recent report from the Joint National Committee on Prevention, Detection, and Treatment of High Blood Pressure (JNC VII) and in a position

statement of the American Heart Association.<sup>4,6</sup> The aim of the current study was to evaluate demographic profile and etiological factors among chronic kidney disease patients admitted to a tertiary care centre who were clinically and laboratory proven cases of chronic kidney disease.

### MATERIALS AND METHODS

The present prospective study comprises of cases of chronic kidney disease admitted in Department of Medicine, Dr. N.D. Desai Faculty of Medical Science and Research, Nadiad, Gujarat, India. Selection of patients relied on clinically and laboratory proven cases of chronic kidney disease.

Inclusion criteria comprised of patients who were known case of chronic kidney disease with a diagnosed etiology, patient's whose diabetic and thyroid profile was normal and patient who were not on any hypolipidemic drugs. Exclusion criteria consisted of patients having age less than 12 years, patients having known

case of diabetes mellitus, patients with hypothyroidism and patients having renal transplantation. All patients were studied in detail for history, clinical examination at the time of presentation, course of illness during hospital stay and at the time of discharge, associated risk factors and medical illness and on regular follow up.

All patients were studied in detail for history, clinical examination at the time of presentation, course of illness during hospital stay and at the time of discharge, associated risk factors and medical illness and on regular follow up.

All patients were investigated in form of routine investigations, serum electrolytes, serum lipid profile, thyroid profile, ultrasonography of kidney size and cortico-medullary differentiation, diabetic profile and other investigations as and when required.

The statistical operations were done through SPSS (Statistical Presentation System Software) and Graph pad for Windows.

**Table 1: Sex distribution in our study**

Sex	Frequency	Percentage
Female	18	36
Male	32	64

**Table 2: Age wise distribution of population in our study**

Age Distribution	Frequency	Percentage
25-30 year	4	8
>30-35 year	17	34
>35-40 year	15	30
>40-45 year	7	14
>45-50 year	5	10
>50 year	2	4
Total	50	100

**Table 3: Sex wise age distribution in our study**

Age distribution	Male	Female
25to 30 years	3	1
>30to 35 years	12	5
>35to 40 years	6	9
>40to 45 years	6	1
>45 to 50years	3	2
>50 years	2	0
Total	32	18

**Table 4: Etiological distribution of population in study**

Etiology	Frequency(n)	Percentage (%)
Hypertension	36	72
Lupus Nephritis	8	16
Membranous Granulonephritis	4	4
ADPKD	3	6

(n=50)

## RESULTS

In the present study, 50 patients of chronic kidney disease were studied and the data collected was analyzed using contingency table analysis.

In the present study, there are 64% male and 36% female patients suffering from chronic kidney disease. It suggests that male patients are more involved in the chronic kidney disease (table 1). In our study, more patients are of 30- 40 years of age, and they are on regular treatment or on maintenance hemodialysis (table 2). According to age wise distribution the males and females are distributed in the subsets of age distribution (table 3).

The etiological prevalence of the chronic kidney disease in the present study are represented in table 4. The table shows the higher prevalence of the Hypertension that causes the chronic kidney disease. That is the age-related factor the prevalence of this is increased with the age. Second is the Lupus Nephritis, the auto immune disease causing the kidney disease. Membranous granulonephritis and autosomal dominant poly cystic kidney disease also cause the chronic kidney disease in the decreasing order.

## DISCUSSION

According to the Kidney Disease Quality Outcome Initiative (K/DOQI) definition, CKD is defined as kidney damage or glomerular filtration rate (GFR) <60 mL/min/1.73 m<sup>2</sup> for 3 months or more, irrespective of cause.<sup>7</sup>

In the present study, there were 64% male and 36% female patients suffering from chronic kidney disease. It suggested that male patients are more involved in the chronic kidney disease. The etiological prevalence of the chronic kidney disease in the present study are represented in table 4 and graph 4. The table shows the higher prevalence of the Hypertension that causes the chronic kidney disease. That is the age-related factor the prevalence of this is increased with the age. Second is the Lupus Nephritis, the auto immune disease causing the kidney disease. Membranous granulonephritis and autosomal dominant poly cystic kidney disease also cause the chronic kidney disease in the decreasing order.

Similarly, Rajapurkar MM et al<sup>8</sup> documented the demographics, etiological spectrum, practice patterns, variations and special characteristics. The mean age was 50.1 ± 14.6 years, with M:F ratio of 70:30. Diabetic nephropathy was the commonest cause (31%), followed by CKD of undetermined etiology (16%), chronic glomerulonephritis (14%) and hypertensive nephrosclerosis (13%). About 48% cases presented in Stage V; they were younger than those in Stages III-IV. Diabetic nephropathy patients were older, more likely to present in earlier stages of CKD and had a higher frequency of males; whereas those with CKD of unexplained etiology were younger, had more females and more frequently presented in Stage V. Jayasekara KB et al<sup>9</sup> commenced a study to identify the epidemiology of chronic kidney disease of uncertain etiology in Sri Lanka. The results showed that the male:female ratio was 2.4:1, the mean age of patients was 54.7 ± 8 years, 92% of the patients were farmers, and 93% consumed water from shallow dug wells. Familial occurrence was common (36%). The prevalence of chronic kidney disease in different age groups was 3% in those aged 30–40 years; 7% in those aged 41–50 years, 20% in those aged 51–60 years, and 29% in those older than 60 years. Chronic kidney disease of

uncertain etiology was diagnosed in 70.2% of patients, while 15.7% and 9.6% were due to hypertension and diabetic mellitus, respectively.

Singh AK et al<sup>10</sup> carried a cohort study that included 5588 subjects in in this analysis. The mean ± SD age of all participants was 45.22 ± 15.2 years (range 18–98 years) and 55.1% of them were males and 44.9% were females. The overall prevalence of CKD in the SEEK (Screening and Early Evaluation of Kidney Disease) - India cohort was 17.2% with a mean eGFR of 84.27 ± 76.46 versus 116.94 ± 44.65 mL/min/1.73 m<sup>2</sup> in non-CKD group while 79.5% in the CKD group had proteinuria. Prevalence of CKD stages 1, 2, 3, 4 and 5 was 7%, 4.3%, 4.3%, 0.8% and 0.8%, respectively. Number of identifiable and non- identifiable causes are available in literature that can cause chronic kidney disease. The main causes that can cause chronic kidney disease consists of hypertension associated kidney disease (including vascular and ischemic kidney disease), glomerulonephritis, autosomal dominant polycystic kidney disease, diabetic nephropathy and other cystic and tubule interstitial nephropathy(including drug induced).<sup>11</sup> Furthermore, novel links between manifestations of poor oral health and systemic complications in CKD such as protein-energy wasting (PEW), infections, and atherosclerotic complications are being established. Oral diseases contribute to the elevated incidence of protein energy wasting (PEW) in CKD patients. All of these risk factors are interrelated in a vicious circle: whereas poor oral health may lead to both inflammation and PEW in CKD patients, numerous pathways associate the accumulation of proinflammatory cytokines with different aspects of PEW, including anorexia, muscle loss, low anabolic hormones, increased energy expenditure, and insulin resistance.<sup>12</sup>

The most common cause of CKD in population-based studies is diabetic nephropathy. Nearly 3,500 transplants are done annually, the total number of cadaver donors being approximately 700 till now. Thus, taken together, nearly 18,000–20,000 patients (10% of new ESRD cases) in India get renal replacement therapy. Until recently, the government did not recognize CKD/ESRD as a significant problem in India. On the one side the government has initiated a process by which it is planning to establish stand-alone hemodialysis units in the country to increase the facilities at an affordable cost, and on the transplant side it had launched a National Organ Transplant Program to facilitate transplantation on a national scale. Hemodialysis program is halfway to being implemented. Thus, in India there is still a long way to go with respect to CKD. Until then, in a country like India, screening of high-risk individuals for CKD and the risk factors is the best bet.<sup>13</sup>

## CONCLUSION

The present study concludes that male patients are more involved in the chronic kidney disease. The study found that there was higher prevalence of the hypertension in chronic kidney disease patients. The other prevalent causes revealed are age related factors, Lupus Nephritis membranous granulonephritis and autosomal dominant poly cystic kidney disease.

## REFERENCES

1. Eknoyan G, Lameire N, Barsoum R, Eckardt KU, Levin A, Levin N, Locatelli F, Macleod A, Vanholder R, Walker R, Wang H. The burden of kidney disease: improving global outcomes. *Kidney international*. 2004 Oct 1;66(4):1310-4.

2. World Health Organization: Preventing Chronic Disease: A Vital Investment. Geneva, WHO, 2005.
3. Wattanakit K, Cushman M, Stehman-Breen C, Heckbert SR, Folsom AR. Chronic kidney disease increases risk for venous thromboembolism. *Journal of the American society of Nephrology*. 2008 Jan 1;19(1):135-40.
4. Sarnak MJ, Levey AS, Schoolwerth AC, et al. kidney disease as a risk factor for development of cardiovascular disease: a statement from the American Heart Association Councils on Kidney in Cardiovascular Disease, High Blood Pressure Research, Clinical Cardiology, and Epidemiology and Prevention. *Circulation* 2003; 108: 2154-69.
5. Davids MR. The epidemic of chronic kidney disease. *South African Journal of Clinical Nutrition*. 2005 Oct 24;18(2):47-9.
6. Chobanian AV, Bakris GL, Black HR, et al. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension* 2003; 42: 1206-1252. 6.
7. National Kidney Foundation. K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification and Stratification *Am J Kidney Dis*, 39 (2002), pp. S1-S266.
8. Rajapurkar MM, John GT, Kirpalani AL, Abraham G, Agarwal SK, Almeida AF, Gang S, Gupta A, Modi G, Pahari D, Pisharody R. What do we know about chronic kidney disease in India: first report of the Indian CKD registry. *BMC nephrology*. 2012 Dec;13(1):1-8.
9. Jayasekara KB, Dissanayake DM, Sivakanesan R, Ranasinghe A, Karunarathna RH, Kumara GW. Epidemiology of chronic kidney disease, with special emphasis on chronic kidney disease of uncertain etiology, in the north central region of Sri Lanka. *Journal of epidemiology*. 2015 Apr 5;25(4):275-80.
10. Singh AK, Farag YM, Mittal BV, Subramanian KK, Reddy SR, Acharya VN, Almeida AF, Channakeshavamurthy A, Ballal HS, Gaccione P, Issacs R. Epidemiology and risk factors of chronic

kidney disease in India—results from the SEEK (Screening and Early Evaluation of Kidney Disease) study. *BMC nephrology*. 2013 Dec;14(1):1-0.

11. Levey AS, Eckardt KU, Tsukamoto Y, Levin A, Coresh J, Rossert J, Zeeuw DD, Hostetter TH, Lameire N, Eknoyan G. Definition and classification of chronic kidney disease: a position statement from Kidney Disease: Improving Global Outcomes (KDIGO). *Kidney international*. 2005 Jun 1;67(6):2089-100.

12. Akar H, Akar GC, Carrero JJ, Stenvinkel P, Lindholm B. Systemic consequences of poor oral health in chronic kidney disease patients. *Clinical Journal of the American Society of Nephrology*. 2011 Jan 1;6(1):218-26.

13. Agarwal SK, Srivastava RK. Chronic kidney disease in India: challenges and solutions. *Nephron clinical practice*. 2009;111(3):c197-203.

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