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Prevalence of Risk Factors in Chronic Kidney Disease Patients in and Around Warangal Region

M. Saikala[1], D. Sudheer kumar[2], P. Kishore[1*]

[1]Department of Pharmacy Practice, Care College of Pharmacy, Warangal (Rural)

[2]Department of Pharmaceutics, Care College of Pharmacy, Warangal (Rural)

Corresponding Author: Dr P Kishore, Ph.D. Department of Pharmacy Practice, Care College of Pharmacy, Oglapur (v), Damera (m), Warangal (rural), Telangana, India 506006

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Abstract

Background and Purpose: Chronic kidney disease is a major disease affecting more number of population. Hypertension and Diabetes Mellitus are the common predictors of Chronic kidney disease. Early stages of chronic kidney disease are asymptomatic. Identifying risk factors and controlling them can minimize the progression of kidney damage. The main objective of this study is to identify the prevalence of risk factors of Chronic kidney disease in and around Warangal region.

Materials and Methods: This is a cross sectional study conducted for a period of 2 months in Warangal. A total of 190 patients diagnosed with chronic kidney disease in two superspeciality hospitals were involved in the study.

Results: 190 patients were involved. Male were predominant in the study (61 %) compared to female(38.9 %). Hypertension is the most common risk factor of chronic kidney disease seen in 72 patients(38 %), followed by diabetes mellitus in 40 patients(21 %).

Conclusion: In our study, hypertension was the most common risk factor of chronic kidney disease observed in 72 patients (38 %), followed by diabetes mellitus in 40 patients (21 %).Prevalence of chronic kidney disease was more in male than female. Older age, uncontrolled hypertension, diabetes mellitus, history of smoking and alcohol were risk factors for chronic kidney disease among study population. Screening for chronic kidney disease at regular intervals can minimize its progression. Clinical Pharmacist has a major role in creating awareness in chronic kidney disease patients about strict adherence to medications.

Keywords: Chronic kidney disease, Hypertension, diabetes mellitus, albuminuria, Glomerular Filteration Rate.

Introduction

Chronic kidney disease (CKD) is recognized as a major health problem affecting more number of people worldwide. It is defined as the abnormalities in kidney structure and its functions that persists for more than 3 months. Hypertension and diabetes mellitus are the major risk factors for the progression of CKD. Other risk factors of CKD include age, obesity, physical inactivity, diet and social habits.

CKD is classified into five stages based on the Glomerular Filtration Rate. Stage 1 is considered as

mild kidney dysfunction whereas stage 5 is severe kidney damage for which dialysis or kidney transplantation is required.

- Stage 1: normal eGFR ≥ 90 mL/min per 1.73 m^2 and persistent albuminuria
- Stage 2: eGFR between 60 to 89 mL/min per 1.73 m^2
- Stage 3: eGFR between 30 to 59 mL/min per 1.73 m^2
- Stage 4: eGFR between 15 to 29 mL/min per 1.73 m^2
- Stage 5: eGFR of < 15 mL/min per 1.73 m^2 or end-stage renal disease.[1]

According to Global Burden of Disease Study, 956,200 deaths due to CKD were estimated worldwide representing 134.6% increase from 1990. CKD was ranked as the 19th highest cause of deaths.Worldwide, 1.9 million end stage renal disease patients were estimated to be on renal replacement therapy.As hypertension and diabetes mellitus are the leading causes of CKD, increase in prevalence of these diseases could eventually lead to the increase in the number of individuals with CKD.[2]Diabetes and hypertension account for over 2/3rd of the cases of CKD in western countries. In India too, DM and HTN account for 40–60% cases of CKD.[3]

CKD- Hypertension

Hypertension is more prevalent and is the major risk factor for CKD which affects almost one in seven people. Risk of CKD is more in stage 1 hypertensive patients. Kidneys play an important role in the regulation of blood pressure. Impairment of renal handling of sodium can lead to hypertension. Factors that causes hypertension activation of RAS, vasoconstriction due to imbalance in the prostaglandins or kinins, impaired sodium excretion due to which there is expansion of ECF volume. Controlling blood pressure in hypertensive CKD patients has shown to slow the progression of the disease.[4,5]

CKD-Diabetes

Type 2 diabetes mellitus is a major health condition affecting many number of people. In the last year, according to global estimation, diabetic patients exceeds >380 million people worldwide, thus representing 8.3 % of the global adult population.[6] Currently, diabetes mellitus is one the leading cause of CKD. Kidney disease is seen in approximately 40 % of the diabetic patients, which results in albuminuria, decrease in glomerular filteration rate or both. Kidneys also play an important role in glycemic control, mainly due to renal contribution to gluconeogenesis and tubular reabsorption of glucose along with pancreas, adipocytes, liver, and intestines.[7] Microalbuminuria is the first sign of renal damage in diabetic patients which will progress to macroalbuminuria. In diabetic patients screening for CKD should be done by assessment of urinary albumin excretion and by considering kidney function through GFR.[8]Main purpose of this study is to estimate the prevalence of risk factors of CKD in and around Warangal region.

Materials and Methods

A total of 190 patients who were diagnosed with CKD were included in the study. It was conducted in two private hospitals in Warangal for a period of two months. Patients diagnosed with acute renal failure and age less than 20 years were excluded. Parameters considered in the study include demographics of the patient, risk factors, social habits, laboratory findings like creatinine levels.

Results

This study estimated the prevalence of CKD and its risk factors among 190 study population in Warangal. Male

were predominant in the study (61 %) compared to female (38.9 %).CKD was more prevalent in male. Among them, majority male patients belong to 61-70 years age group followed by 51-60 years age group, whereas in female, majority belongs to 51-60 years age group. Table 1 shows characteristics of the study population. Out of 190 patients, hypertension is the most common risk factor of CKD observed in 72 patients (38 %), followed by diabetes mellitus in 40 patients(21 %). 52 patients(27.3 %) had a history of both hypertension and diabetes mellitus. Table 2 shows risk factors of CKD. Of 190 patients, 67 patients (35.2 %) were alcoholic, 28 patients (14.7 %) were smokers. Among 190 cases, 34.2 % had stage 5 CKD. Out of 190 patients, 15.7 % patients had a history of overuse of analgesics.

Table No. 1: Different age group classification in male

Age Group	Male (%)	Female (%)
21-30	3.4 %	2.7 %
31-40	12 %	14.8 %
41-50	25 %	20 %
51-60	26 %	27 %
61-70	27 %	22 %
71-80	6 %	12 %

Table No. 2: Risk Factors of CKD among study population

Risk Factor	Male (%)	Female (%)	Total	%
HTN	36.2 %	40.5 %	72	38 %
DM	18.9 %	24.3 %	40	21%
HTN&DM	28.4 %	25.6 %	52	27.3%
Alcoholic	44.8 %	20.2 %	67	35.2%
Smokers	22.4 %	2.7 %	28	14.7%
H/o NSAIDs use	14.6 %	17.5 %	30	15.7%
Family history of CKD	3.4 %	-	4	2.1%

Discussion

During the study period of 2 months, 190 CKD patients were evaluated and the mean age group affected with CKD was found to be 51-70 years. This might be due to risk factors such as age, hypertension, DM and decline in kidney function. Results are similar to a study conducted by Shewaneh D *et al*., 2018, where majority of the patients were greater than 60 years.[9] As age increases, there will be progressive loss of nephrons and decrease in renal blood flow which leads to CKD. Thus screening of CKD in older age is important strategy.

This study shows higher prevalence of CKD among male than females (61 % & 38.9 %) which is similar to Chang *et al*., 2016 where prevalence of CKD was 56.14 % and 43.86 % in males and females respectively[10] and contrast to study conducted by Kokila K *et al.,2019*, where females had higher prevalence of CKD.[11]This may be due to chronic consumption of alcohol and smoking.

According to Singh et al.,2013, risk factors associated with CKD includes hypertension, diabetes mellitus (43.1 % and 18.8 % respectively).[12] Similarly in our study, hypertension was the most common risk factor seen in 72 patients (38 %), where as diabetes was seen in 40 patients (21 %). Both hypertension and diabetes were seen in 52 patients (27.3 %).This may be due to older age, sedentary lifestyle, social habits, family history and unaware of effects of hypertension and DM on kidneys.

In our study, 35.2 % (67 patients) were alcoholic and 14.7 % (28 patients) were smokers who were affected with CKD. Kokila K *et al.,2019*, stated that 21.5 % were alcoholic and 32.4 % were smokers.[11] As most of them were unaware of the effects of alcohol and smoking, they could have been consuming on regular basis.

According to Shewaneh D et al.,2018, family history of CKD was found to be 13.1 %.[9] In this study, family history of CKD was found in 4 patients (2.1 %).

Conclusion

Prevalence of CKD was high in older age (above 60 years) and most common in male than female. Most of the patients had a history of hypertension and diabetes mellitus which are the major risk factors for the CKD..Screening for CKD regularly in high risk patients like hypertension and diabetes, can recognize CKD in early stage before it leads to kidney failure. As awareness was very less in CKD patients, clinical pharmacist has a important role in creating awareness about strict adherence to medications, good control of HTN, DM and prevent smoking and alcohol intake.

Abbrevations

CKD: Chronic Kidney Disease

DM:Diabetes Mellitus

eGFR:Estimated Glomerular Filtration Rate

ECF: Extracellular fluid

GFR: Glomerular Filtration Rate

HTN:Hypertension

RAS: Renin Angiotensin System

References

1. Robert Thomas, Abbas Kanso et al., Chronic Kidney Disease and Its Complications. *Prim Care* 2008 June ;35(2):329–vii.
2. Katherine T. Mills, Yu Xu et al., A systematic analysis of worldwidepopulation-based data on the global burdenof chronic kidney disease in 2010. Kidney International advance online publication 29 July 2015.
3. P. P. Varma Prevalence of chronickidney disease in India -Where are we heading? Indian Journal of Nephrology 2015;25(3): 133-135.
4. *Rebecca Hanratty, Michel Chonchol et al.*, Relationship between Blood Pressure and Incident Chronic Kidney Disease in Hypertensive Patients. *Clin J Am Soc Nephrol* 2011 6: 2605–2611.
5. F. M. Tedla, A. Brar et al., Hypertension in Chronic KidneyDisease: Navigating the Evidence. International Journal of Hypertension 2011.
6. Salvatore De Cosmo, Francesca Viazzi et al., Predictors of chronic kidney disease in type 2 diabetes A longitudinal study from the AMD Annals initiative. Medicine 2016; 95:27
7. Roberto Pecoits -Filho, H Interactions between kidney diseaseand diabetes: dangerous liaisons. *Diabetol Metab Syndr 2016; 8:50*
8. Philip McFarlane, David Cherney et al., Chronic Kidney Disease in Diabetes. *Can J Diabetes 2018; 42 S201–S209.*
9. Shewaneh Damtie , Belete Biadgo , Habtamu Wondifraw Baynes et al., Chronic Kidney Disease and Associated Risk Factors Assessment among Diabetes Mellitus Patients at A Tertiary Hospital, Northwest Ethiopia. Ethiop J Health Sci 2018;28: 6
10. Po-Ya Chang, Li-Nien Chien et al., Risk factors of gender for renal progression inpatients with early chronic kidney disease. Medicine 2016; 95:30
11. K. Kokila, K. Chellavel Ganapathi, A study on prevalence of chronic kidney disease and its risk factors among adults in selected slums of Chennai. *Int J Community Med Public Health 2019 Feb;6(2):504-509.*
12. Ajay K Singh, Youssef MK Farag et al., 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, 14:114.