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A Study on the Prevalence of Co-morbidities among the Patients with Chronic Kidney Disease

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ABSTRACT

Aim: The main aim of this study is to assess the prevalence of various co-morbidities among the patients with chronic kidney disease.

Methods: This was a prospective study conducted for a period of six months at a tertiary care hospital of East Godavari district, Andhra Pradesh. Patients with both the genders who were diagnosed with CKD with an age of above 18 years were included and patients with acute renal failure were excluded from this study.

Results: In this study, most of the study participants were observed with stage-V CKD (80.4%) followed by stage-IV CKD (12.1%). Nephropathy due to hypertension (45.1%) and diabetes (24.3%) were observed to be the most common causes among the CKD patients in this study. Hypertension associated with diabetes (29.3%) was observed to be the most common co-morbidities in this study. Loop diuretics (43.7%) and calcium channel blockers (32.1%) were observed to be the most commonly prescribed anti-hypertensive drugs among the CKD patients associated with hypertension. Short acting insulin (71%) and sulfonyl ureas (13.1%) were observed to be the most commonly prescribed anti-diabetic drugs among the CKD patients associated with diabetes.

Conclusion: Routine screening and regular check-ups along with effective management of co-morbidities in CKD require a comprehensive approach that integrates the pharmacotherapy and inter-disciplinary collaboration. Clinical pharmacists should employ evidence-based practices, monitor drug interactions and advocate for patient-centred care to enhance the quality of life of CKD patients.

Introduction

Chronic kidney disease (CKD) can be defined as the presence of renal damage or an estimated glomerular filtration rate (eGFR) less than 60 ml/min/1.73 mt2, persisting for 3 months or more, irrespective of the etiology [1]. It is a heterogeneous illness characterized by persistent urine abnormality, structural abnormalities or impaired excretory renal function that is linked to the degeneration of functioning nephrons. CKD is a global public health concern that can lead to renal failure, cardiovascular diseases and early mortality [2]. In the western world, diabetes was observed to be the primary risk factor for the development of CKD. Other significant risk factors that increase the risk of CKD include smoking and hypertension. In Asia and sub-saharan Africa, glomerulonephritis is the primary cause of CKD [3].

The risk of chronic kidney disease (CKD) can be raised by several variables including age, gender, race & ethnicity, family history, illicit drug use, tobacco use, socioeconomic status and concomitant conditions including diabetes & hypertension that are either traditionally or non-traditionally interconnected. Imaging detected anatomical or functional abnormalities of the kidneys, with or without a decline in GFR, can be used to characterize kidney disease. These might manifest as clinical irregularities or as markers of renal impairment such as albuminuria of more than 30 mg/dl abnormalities related to urine sediment & electrolytes and other anomalies resulting from tubular illnesses [4,5].

The primary co-morbid conditions include anaemia, peripheral vascular disease, cerebro-vascular illness, depression, anxiety, chronic respiratory disease, diabetes, ischemic stroke and painful medical conditions. Co-morbidities are significant because they may affect the expense of therapy, the administration of medications, life expectancy, as well as quality of life. A few specific co-morbidities are recognized risk factors for the advancement of CKD.

Furthermore, multi-morbidity may worsen a patient's quality of life by adding to the burden of their medical care and increasing the risk of poly-pharmacy. In the early stages of CKD, it is possible to do the management whereas it will be difficult to manage when we observe the patients with complex co-morbidities. The main aim of this study is to assess the prevalence of various co-morbidities among the patients with chronic kidney disease [6-9].

Materials and Methods

This was a prospective study conducted for a period of six months at a tertiary care hospital of East Godavari district, Andhra Pradesh. Patients with both the genders who were diagnosed with CKD with an age of above 18 years were included and patients with acute renal failure were excluded from this study.

Results and Discussion

In this study, a total of 82 study participants were recruited. Among them, 61% were males and 39% were females (Table 1).

Table 1: Categorization based on Gender

Gender	No. of patients (%)
Males	50 (61)
Females	32 (39)
Total	**82 (100)**

Majority of the study participants were observed with CKD in the age groups 41-50 years (25.6%) and 51-60 years (25.6%) followed by 61-70 years (21.9%) (Table 2). There is an exponential increase in the incidence of CKD with age.

Table 2: Age-wise distribution of patients

Age (in years)	Males (%)	Females (%)	Total (%)
21-30	0 (0)	1 (3.1)	1 (1.3)
31-40	7 (14)	8 (25)	15 (18.2)
41-50	16 (32)	5 (15.7)	21 (25.6)
51-60	10 (20)	11 (34.3)	21 (25.6)
61-70	13 (26)	5 (15.7)	18 (21.9)
71-80	3 (6)	2 (6.2)	5 (6.1)
81-90	1 (2)	0 (0)	1 (1.3)
Total	**50 (100)**	**32 (100)**	**82 (100)**

In this study, most of the study participants were observed with stage-V CKD (80.4%) followed by stage-IV CKD (12.1%) (Table 3).

Table 3: Distribution of patients based on stages of CKD

Stage of CKD	No. of Patients (%)
Stage I	1 (1.3)
Stage II	4 (4.9)
Stage III	1 (1.3)
Stage IV	10 (12.1)
Stage V	66 (80.4)
Total	**82 (100)**

Nephropathy due to hypertension (45.1%) and diabetes (24.3%) were observed to be the most common causes among the CKD patients in this study (Table 4).

Table 4: Categorization of CKD patients based on etiology

Causes	Males (%)	Females (%)	Total (%)
Hypertension nephropathy	26 (52)	11 (34.4)	37 (45.1)
Autoimmune disorders	0 (0)	1(3.1)	1 (1.3)
Chronic glomerulonephritis	0 (0)	1(3.1)	1 (1.3)
Chronic infection	6 (12)	6(18.8)	12 (14.6)
Diabetic Nephropathy	12 (24)	8(25)	20 (24.3)
IgA Nephropathy	1 (2)	0(0)	1 (1.3)
Obstructive uropathy	1 (2)	0(0)	1 (1.3)
Polycystic kidney disease	0 (0)	3(9.4)	3 (3.6)
Pre renal disease	2 (4)	1(3.1)	3 (3.6)
Systemic infection	2 (4)	0(0)	2 (2.3)
Systemic lupus nephritis	0 (0)	1(3.1)	1 (1.3)
Total	**50 (100)**	**32 (100)**	**82 (100)**

Hypertension associated with diabetes (29.3%) was observed to be the most common co-morbidities in this study (Table 5). This result was similar to the study done by Pranavi Dasari et al [10]. Loop diuretics (43.7%) and calcium channel blockers (32.1%) were observed to be the most commonly prescribed anti-hypertensive drugs among the CKD patients associated with hypertension. Short acting insulin (71%) and sulfonyl ureas (13.1%) were observed to be the most commonly prescribed anti-diabetic drugs among the CKD patients associated with diabetes.

Table 5: Categorization of CKD patients based on co-morbidities

Comorbidities	Males (%)	Females (%)	Total (%)
Anaemia	4 (8)	2 (6.2)	6 (7.3)
Anaemia, Hypertension, CAD	1 (2)	1 (3.1)	2 (2.3)
CAD with moderate LV dysfunction	5 (10)	4(12.6)	9 (10.9)
CAD with severe LV dysfunction	4 (8)	4 (12.6)	8 (9.8)
CVA -Ischemic stroke	0 (0)	1 (3.1)	1 (1.3)
Diabetes mellitus	0 (0)	2 (6.2)	2 (2.3)
Diabetes, CVA, Hypertension	1 (2)	1 (3.1)	2 (2.3)
Hypertension, CAD with moderate LV dysfunction	1 (2)	0 (0)	1 (1.3)
Hypertension, Diabetes	16 (32)	8 (25)	24 (29.3)
Hypertension, Diabetes, CVA, Hypothyroidism	1 (2)	0 (0)	1 (1.3)
Hypertension, Diabetes, CVA, Hypothyroidism, CAD	0 (0)	1 (3.1)	1 (1.3)
Hypertension, Diabetes, Tuberculosis	1 (2)	0(0)	1 (1.3)
Hypertension, Ischemic stroke	1 (2)	1 (3.1)	2 (2.3)
Hypertension	0 (0)	1 (3.1)	1 (1.3)
Liver disease	12 (24)	5(15.7)	17 (20.8)
Secondary Hyper-parathyroid	1 (2)	0 (0)	1 (1.3)
Thyroid, Hypertension, Diabetes	1 (2)	1(3.1)	2 (2.3)
Tuberculosis, Hyperthyroidism	1 (2)	0 (0)	1 (1.3)
Total	**50 (100)**	**32 (100)**	**82 (100)**

Conclusion

Routine screening and regular check-ups along with effective management of co-morbidities in CKD require a comprehensive approach that integrates the pharmacotherapy and inter-disciplinary collaboration. Clinical pharmacists should employ evidence-based practices, monitor drug interactions and advocate for patient-centred care to enhance the quality of life of CKD patients.

Abbreviations

CKD: Chronic Kidney Disease; **CAD:** Coronary Artery Disease; **CVA:** Cerebro Vascular Accident; **LV:** Left Ventricle.

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