



A Study on Comorbidities and Complications in Chronic Kidney Disease: Hospital Based Study

Golla Chandramouli*, Anreddy Rama Narsimha Reddy, Cheeti Laxmi, Paidi Aarthi, Kanaparthi Varshini and Udutha Shreya

Department of Pharmacy Practice, Sree Chaitanya Institute of Pharmaceutical Sciences, Thimmapur, Karimnagar, Telangana.

Received: 29 Nov 2024 / Accepted: 20 Dec 2024 / Published online: 01 Jan 2025

*Corresponding Author Email: shekarr2008@gmail.com

ABSTRACT

Background: Chronic kidney disease (CKD) is a condition in which the gradual decrease of kidney functioning takes place, which may lead to kidney failure. This study assessed comorbidities, patient awareness, and complications among CKD patients. **Objectives:** To evaluate the comorbidities among the CKD patients on dialysis and identify the complications to create awareness among the general population to manage the mortality rate in the population. **Methods:** An Observational study was conducted in tertiary care hospitals over a period of 6 months in 112 patients with CKD on dialysis based on the inclusion criteria. **Results:** The study includes dialysis patients with CKD. Males (67%) were affected more than females (33%). Indeed, the majority of afflicted patients (23%) are between 41 and 50 years old. Most patients (32%) had hypertension as a prior medical history, and few had additional co-morbidities. Dialysis patients were screened for problems throughout their regular cycles, and anemia (24%) was the primary cause. **Conclusion:** The findings concluded that most patients had CKD and high blood pressure. Patient mortality is increased in hypertensive CKD. Population awareness is a prerequisite for averting illness recurrence.

KEY WORDS: Chronic Kidney Disease, Dialysis, Co-morbidities, Awareness, and Complications

1. INTRODUCTION

Chronic kidney disease (CKD) is a progressive condition characterized by a gradual decline in kidney function over time. It is associated with kidney damage or glomerular filtration rate (GFR) below 60 ml/min/1.73 m² lasting more than 3 months⁽¹⁾. The burden of CKD has been steadily rising worldwide, with estimates suggesting that nearly 10% of the adult population is affected. CKD is associated with increased morbidity, mortality, and healthcare costs, particularly due to its strong association with cardiovascular disease⁽²⁾.

In the United States, CKD ranks as the 10th leading cause of death, with one in seven adults estimated to have the condition. The burden is particularly high in low and middle-income countries, where healthcare infrastructure may be inadequate to manage the condition effectively⁽³⁾.

CKD has multiple risk factors, including diabetes mellitus, hypertension, glomerulonephritis, and chronic infections. Diabetic nephropathy remains the most common cause, followed closely by hypertensive nephropathy⁽⁴⁾. Importantly, CKD is often asymptomatic until advanced stages, which delays diagnosis and intervention. Therefore, understanding risk factors, comorbidities, and patient awareness is vital to improving prevention and management strategies⁽⁵⁾. The present study was conducted to evaluate awareness of CKD complications, risk factors, and comorbidities among patients undergoing dialysis in a tertiary care hospital.

2. METHODOLOGY

It was an observational, hospital-based study conducted in the nephrology department of a tertiary care hospital, Karimnagar. A total of 112 patients with CKD undergoing dialysis were included. The study was conducted over six months. An inclusion criterion includes adults above 20 years diagnosed with CKD, including patients with diabetes mellitus, hypertension, and other comorbidities. Women who were pregnant, patients under 20 years, and those with

psychiatric illnesses were excluded from the study. Data were collected using a structured form, which included patient demographics, medical history, social habits, laboratory parameters, dialysis cycles, post-dialysis complications, and medical management. Awareness of CKD and its complications was also assessed through patient interviews. The primary outcomes were the prevalence of comorbidities, complications, and patient awareness. Secondary outcomes included evaluation of risk factors contributing to disease progression and mortality.

3. RESULTS

A total of 112 patients with CKD undergoing dialysis were included in the study. Out of these, 76 were male (68%) and 36 were female (32%), indicating a male predominance. The age distribution revealed that the majority of patients (34%) were between 41 and 50 years, followed by 23% in the 51–60 age group. Very few patients were under 30 years old ⁽⁶⁾.

3.1. Distribution of data based on comorbidities in CKD patients

The comorbidities were common among CKD patients. Hypertension was the most prevalent, affecting 34% of the patients, followed by diabetes mellitus (27%). Other comorbidities, such as cardiovascular disease and infections, accounted for 28%, while 11% of patients had no comorbidities; the results are presented in Fig. 1.

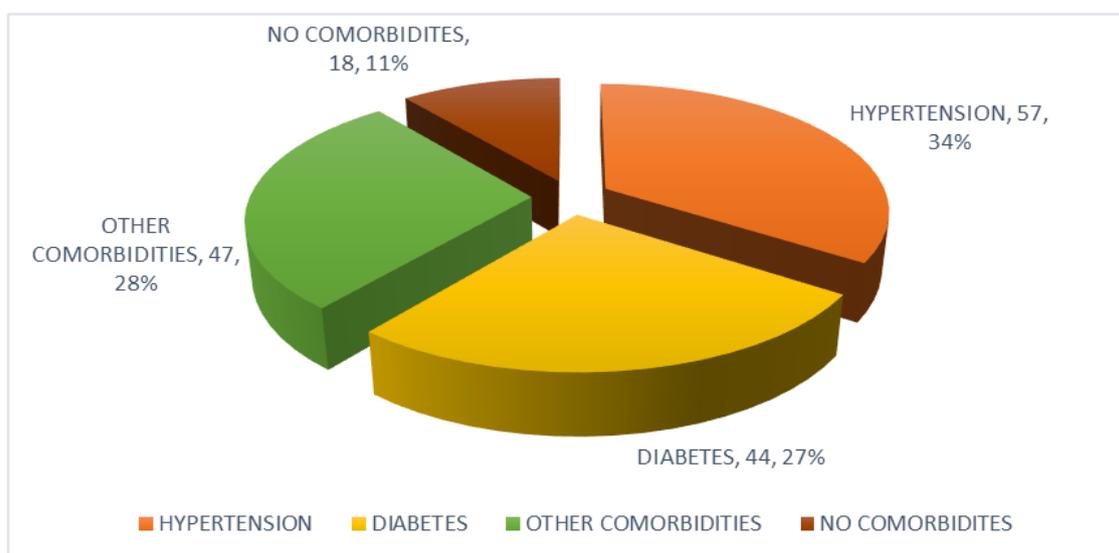


Fig 1: Distribution of co-morbidities in CKD patients

Dialysis-related complications were also observed. Anemia was the most common, affecting 26% of patients, followed by hypotension (20%), giddiness (19%), and hypoglycemia (13%). Other complications, such as infections and cramps, were also reported. Patient awareness regarding CKD progression and lifestyle modifications was found to be poor, with many patients unaware of dietary restrictions, the importance of blood pressure control, or regular follow-ups ⁽⁷⁾.

3.2. Distribution of CKD patients based on age group

The 112 instances of CKD patients included in the study above. The distribution was carried out according to age groupings to determine which age group is more frequently affected by CKD ⁽⁸⁾. Based on this study, we discovered that the majority of persons with CKD were in the 41–50 age range, as shown in Fig. 2.

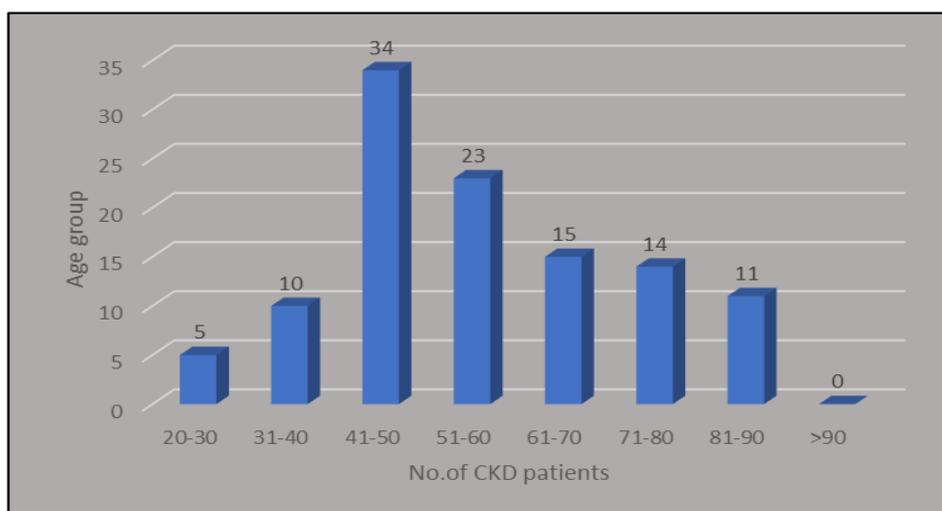


Fig 2: CKD patients based on age group

3.3. Distribution of CKD patients based on dialysis complications

In our study, the investigation revealed that anemia is a prevalent side effect for the majority of CKD patients receiving dialysis. Additionally, the majority of patients experienced episodes of hypotension, hypoglycemia, and other problems. The results are depicted in Fig. 3⁽⁹⁾.

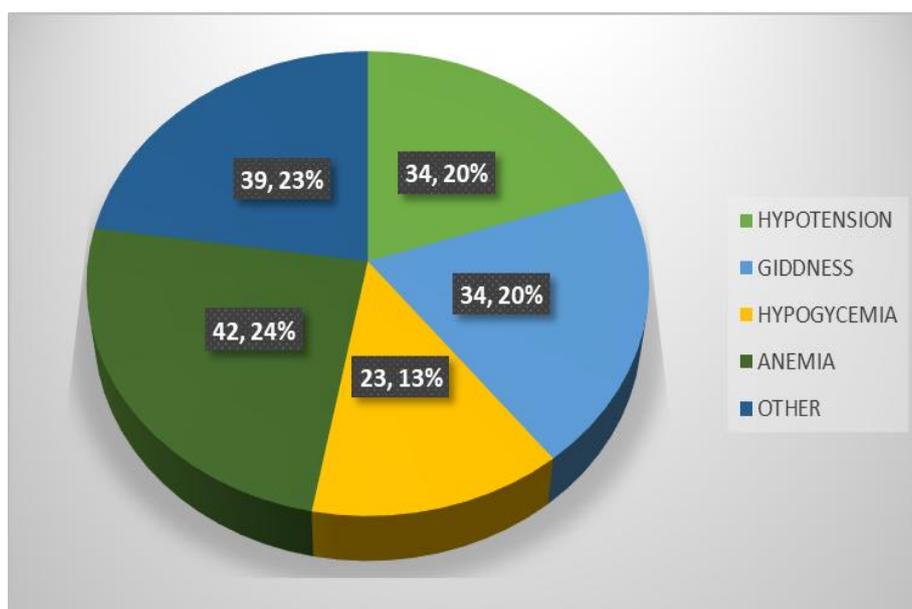


Fig 3: Distribution of complications in CKD patients

4.DISCUSSION

The findings of this study highlight the critical role of comorbidities in CKD progression. Hypertension and diabetes were the most significant contributors, consistent with global data. Anemia and hypotension were the most frequent complications associated with dialysis, which aligns with previous studies.

Male predominance was noted, which may reflect higher exposure to risk factors such as smoking, alcohol, and occupational stress. The most affected age group was 41–50 years, suggesting that CKD significantly impacts the working-age population, thereby posing economic challenges. The present work was comparable to the population-based cohort study (Marcello Tonelli *et al*)⁽¹⁰⁾.

The inquiry shows that 34% of the 112 CKD patients had a history of hypertension when all other co-morbidities are compared. Therefore, hypertension is the most prevalent risk factor for chronic kidney disease. Similarly, Jacob *et al.* identified hypertension and diabetes as key etiologies, consistent with our study.

Our investigation revealed that anemia is a prevalent side effect for the majority of CKD patients receiving dialysis. In addition, the majority of patients experienced episodes of hypotension, hypoglycemia, and other problems. Our findings align with those of Bartula *et al.*, who reported anemia and hypotension as common complications among dialysis patients.

5.CONCLUSION

The study's findings were used to assess the comorbidities and complications associated with chronic kidney disease. Hypertension and diabetes are leading comorbidities for CKD, whereas anemia and hypotension are significant complications in dialysis patients. Most patients had limited awareness about their disease and management strategies. Counselling, lifestyle changes, and early intervention are crucial to slowing disease progression and improving quality of life.

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