ORIGINAL ARTICLE

Prevalence of Depression and Anxiety in Chronic Kidney Disease Patients on Hemodialysis

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ABSTRACT

Introduction: Depression and anxiety disorders are common among hemodialysis (HD) dependent chronic kidney disease (CKD) patients. This study determined the prevalence of depression and anxiety in HD-dependent CKD patients.

Methods: 146 HD-dependent patients were selected from the dialysis unit, between 20 and 60 years of age. CKD patients not on hemodialysis were excluded from the study. Depression and anxiety were assessed using the hospital anxiety and depression scale (HADS) questionnaire. Patients' demographic data such as gender, age, and socioeconomic status were recorded. The socioeconomic status was defined as lower class; patients having a monthly income of 5000 to 12000 PKR, middle class; patients having a monthly income of 12000 to 30000 PKR, and upper middle class; patients having a monthly income of > 30000 PKR.

Results: A total of 146 CKD patients were enrolled. The mean age was 39.67±12.42 years. There were 82 (56.2%) males and 64 (43.8%) females in our study. The frequency of depression and anxiety in CKD patients in our study was 32.2% and 19.2%, respectively.. The frequency of depression and anxiety in CKD patients in our study was 32.2% and 19.2%, respectively. Depression and anxiety were stratified among age, gender, and socioeconomic status, and the association was statistically significant (P < 0.05).

Practical implications: After this research we can easily find the anxiety and depression factor among HD dependent CKD patients.

Conclusion: Depression and anxiety are common disorders among HD-dependent CKD patients. Anxiety and depression were observed in 19.2% and 32.2 % of the CKD patients in our study.

Keywords: Depression, Anxiety, Hemodialysis, Chronic Kidney Disease, Prevalence, Mortality.

INTRODUCTION

Chronic kidney disease (CKD) is a condition that causes kidney damage. In other words, it can be defined as an estimated glomerular filtration rate (eGFR) < 60 ml/min/1.73 mt2 that lasts three months approximately, regardless of the circumstances[1]. It results in a gradual loss of kidney function that invariably necessitates the use of treatment such as renal replacement therapy. Deterioration in kidney function is indicated by pathologic irregularities on imaging or renal biopsies, variations in urine sediment analysis, or higher urinary albumin excretion rates[2]. The 2012 KDIGO CKD classification provides data on the etiology of CKD and separates it into six categories depending on the glomerular filtration rate[3-5]. The first stage is characterized by a GFR< 60 mL/minute/1.73 m2 at different ages. End-stage renal disease, also referred to as stage five CKD, is the last stage of CKD in which the kidneys fail to maintain homeostasis properly. Patients with CKD require treatment throughout their lives[6]. It is a considerable financial burden on the healthcare delivery system, and the prevalence is rising across the globe[7]. According to the reports, 13% of individuals are affected by CKD on average[8]. Globally, both the prevalence and incidence of CKD have increased considerably over the past thirty years, However, it is difficult to know the precise number of individuals in each stage. A study conducted in Saudi Arabia showed that the exact number of individuals in each stage of CKD in Saudi Arabia is still proceeding[9]. It is generally believed that CKD is caused by an age-related decline in kidney function, which is commonly exacerbated by obesity, hypertension, and diabetes[10].

Several studies have shown that anxiety and depression are prevalent among CKD patients. Depression is estimated to affect 23.7 % of CKD patients. Moreover, CKD patients on dialysis are more susceptible to depression, with an incidence rate of 34.5% as compared to 13.3% for those not on dialysis[11]. Researchers have also found a higher prevalence of depression in CKD patients who reported having no exercise routine, sleep difficulties, or confirmed stage III CKD. These studies provide more evidence that there is a correlation between depression and renal disease stage1[2]. An individual with advanced CKD (stage III and above) is more prone to depression, with a stronger association between depression and stage III-V CKD in elderly males[13].

Depression and anxiety are serious conditions that requires medical attention.The aim of this study was to determine the prevalence of depression and anxiety among chronic kidney disease (CKD) patients on hemodialysis

MATERIAL AND METHODS

This cross-sectional study was conducted at the Northwest General Hospital and Research Center, Peshawar in the Department of Nephrology from August 2021 to February 2022. All the participants who registered for dialysis were included in the study. CKD patients with an age range of 20 to 60 years were included. Patients with CKD getting treatment other than hemodialysis were excluded from the study. The study protocol and informed consent were approved by Research Ethics Committee, Northwest General Hospital and Research center, Peshawar.

The sample size was calculated using OpenEpi: a web-based sample size calculator. The parameters were as follows: 24.6%14 anticipated frequency of depression, 7% margin of error, and a 95% confidence interval. The sample size was 146.

Patients' demographic data such as gender, age, and socioeconomic status were recorded. The socioeconomic status was defined as lower class; patients having a monthly income of 5000 to 12000 PKR, middle class; patients having a monthly income of 12000 to 30000 PKR, and upper middle class; patients having a monthly income of > 30000 PKR. The outcome variables were depression and anxiety. Depression and anxiety were assessed using the HADS questionnaire. The questionnaire was translated into the local language for the participants. The HADS questionnaire has seven items each for depression and anxiety. A

score of zero to seven is considered normal; a score of eight to 10 indicates borderline anxiety and depression, and a score of 11 to 21 indicates depression and anxiety.

The data were analyzed using IBM SPSS-22. Categorical data were presented as frequencies and percentages. Numerical data were presented as a mean and standard deviation. The outcome was stratified by gender, age, and socioeconomic status. A Chi-square test was used for post-stratification. A P value of <0.05 was considered statistically significant

RESULTS

A total number of 146 CKD patients were enrolled in this study. The mean age of the patients was 39.67±12.42 years. According to the distribution of age, 65 (44.5%) patients belonged to the age group of 20 to 35 years, 42 (28.8%) patients belonged to the age group of 36 to 50 years, and 39 (26.7%) patients were above the age of 50 years. There were 82 (56.2%) males and 64 (43.8%) females in our study. The frequency of depression and anxiety in CKD patients in our study was 32.2% and 19.2%, respectively. Depression and anxiety were stratified among age, gender, and socioeconomic status, and the association was statistically significant (P < 0.05) as seen in the in (Tables 1, 2)

Table 1: Association of Depression with Demographic

Demographics		n (%)	P value
Age groups	20 to 35	14 (29.8)	0.001
	36 to 50	11 (23.4)	
	>50	22 (46.8)	
Gender	Male	19 (40.4)	0.008
	Female	28 (59.6)	
Socioeconomic status	Lower class	34 (72.3)	0.02
	Middle class	10 (21.3)	
	Upper middle class	3 (6.4)	

Table 2: Association of anxiety with demographics

Demographics		n (%)	P value
Age groups	20 to 35	6 (21.4)	0.004
	36 to 50	8 (28.6)	
	>50	14 (50)	
Gender	Male	10 (35.7)	0.01
	Female	18 (64.3)	
Socioeconomic status	Lower class	22 (78.6)	0.02
	Middle class	4 (14.3)	
	Upper middle class	2 (7.1)	

Table 3: Prevalence and severity of Depressive and Anxiety Disorder in CKD patients

Disorder	No. of patients (Percentage)	Severity	No. of patients (Percentage)
Depressive disorder HADS-D score ≥8	89 (60.95)	Mild (8-10)	48 (53.93)
		Moderate (11-15)	19 (21.34)
		Severe (16-21)	22 (24.71)
Anxiety disorder HADS-A score ≥8	57 (39.04)	Mild (8-10)	36 (63.15)
		Moderate (11-15)	15 (26.31)
		Severe (16-21)	6 (10.52)

DISCUSSION

With a worldwide incidence of 11-13 %, CKD is considered one of the most debilitating diseases in the world[14]. Most chronic diseases, notably CKD, are associated with psychiatric disorders[15]. In our study, we determined the prevalence of depression and anxiety, which was 32.2 % and 19.2 % among CKD patients on hemodialysis.

It is generally observed that age plays an important role in psychological disorders in patients with chronic illnesses. The frequency of depression and anxiety was higher in patients over 50 years of age in our study, and the association was statistically significant (P < 0.05). Moreover, we observed that depression and

anxiety were more prevalent in lower and middle-class patients as compared to the upper middle class, and the association was found to be statistically significant (P <0.05). This may be explained by the fact that hemodialysis is a costly procedure that can cause a financial burden on patients with modest incomes. Our study results compare similarly to findings from earlier studies that estimated the prevalence of anxiety in CKD patients ranging from 12 to 52 % and depression from 20 to 30%[13].

Depression and anxiety are substantially influenced by sociodemographic factors such as age, gender, and socioeconomic status of the patients. In our study, female patients showed a significantly higher frequency of depression and anxiety as compared to male patients. These findings are consistent with earlier research studies which demonstrated that among CKD patients, females are the most psychologically affected group[14-16]. Many studies have found that elderly CKD patients on hemodialysis are more prone to developing depression and anxiety symptoms, as older people are more likely to lag behind on social events and become socially distanced from activities and events, leading to psychological unhappiness. A study in Russia involving more than 1000 CKD patients undergoing hemodialysis discovered that increasing age is a major risk factor for poor mental health, increased depression, and anxiety in these patients[17]. This is in line with our study, which found a significant association between increasing age, and the prevalence of depression and anxiety. Depression and anxiety in CKD patients are significantly influenced by their socioeconomic situation. As seen in an Indian study, depression was more prevalent in lower economic groups[18]. This could be explained by the effects of perceived financial difficulty. In a nutshell, depression and anxiety are common among CKD patients, especially among females, the elderly, and those with lower socioeconomic status.

Limitations of our study included the fact that we did not rule out other reasons of depression in our study participants. Moreover, our small sample was taken from a single center and was relatively small. Finally, the use of HADS questionnaire to assess depression and anxiety has its own limitaions.

CONCLUSION

Depression and anxiety disorders are common among CKD patients on hemodialysis. Anxiety and depression were observed in 19.2% and 32.2 % of the CKD patients in our study, which provides further evidence regarding the high risk of anxiety and depression in HD-dependent patients. We found that depression and anxiety were significantly associated with age, gender, and socioeconomic status. Counseling sessions by psychiatric consultants are recommended for hemodialysis-dependent CKD patients to improve their psychological well-being.

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