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Prevalence of depression in patients on hemodialysis

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Abstract---Objective: To determine the prevalence of depression in patients undergoing hemodialysis. Study Design: Cross-sectional study. Place and Duration: Institute of Kidney Diseases Hayatabad, Peshawar and PAF Hospital Islamabad for the duration from December 2021 to May 2022. Methodology: Two hundred and twenty patients on hemodialysis of either gender with ages 25-70 years were enrolled. Detailed demographics were recorded after taking informed written consent. Patients' Health Questionnaire-9 (PHQ-9) questions were used to determine the frequency of depression. Severity of depression was also examined. Data was analyzed by SPSS 24.0. Results: There were 135 (61.36%) males while 85 (38.64%) patients were females. Mean age of patients was 46.85±12.38 years. Mean time duration of hemodialysis was 5.25±2.46 years. Depression was found in 160 (72.73%) patients, among them 30 (13.64%) patients had mild,

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75 (34.09%) had moderate and 55 (25%) had severe depression. Patients on hemodialysis less than 5 years found more depressive as compared to >5 years. (p-value <0.05). Conclusion: It is concluded that the prevalence of depression in patients of hemodialysis was high.

Keywords---depression, chronic kidney disease, hemodialysis.

Introduction

Damage to the kidneys lasting longer than three months, from whatever cause, is considered chronic kidney disease (CKD). A sizable number of CKD patients may develop ESRD and require renal replacement therapy at some point in their lives (RRT). Chronic kidney disease (CKD) is a major international health issue. One-third of those with CKD live in China and India (132.3 million and 115.1 million, respectively), according to data from the Global Burden of Disease (GBD) Chronic Kidney Disease Collaboration [1]. This equates to a global prevalence of CKD of 9.1% in 2017. In addition, CKD is associated with a high mortality rate. It is estimated that 1.23 million people died from complications of CKD in 2017 [1], with an age-standardized mortality rate of 0.16. Dialysis is still the most common RRT for individuals with ESRD [2,3]. According to the Chinese National Renal Data System (CNRDS), the number of patients undergoing MHD in China rose from 0.235 million in 2011 to 0.447 million in 2016 (a rise of 90.2% within 5 years), and the prevalence rose from 174 cases per million in 2011 to 298 cases per million in 2016 (a rise of 71.3% within 5 years).

Many patients undergoing MHD are plagued with debilitating mental diseases, such as anxiety and despair that have a negative impact on their daily lives. Patients undergoing MHD had prevalence rates of 22.8% for interview-based depression and 39.3% for self- or clinician-rated depression, according to a meta-analysis of observational studies collected through a search of MEDLINE and Embase [4]. Multicenter research in Greece found that 29.4% and 35.9% of patients receiving MHD reported depression and anxiety, respectively [5]. However, another meta-analysis of cohort studies found that depression significantly raises the risk of mortality in patients with CKD, and that effective anti-depressive therapy in people with CKD may lower mortality [6]. Depression has been found to be an independent risk factor for death in patients undergoing chronic dialysis, according to a separate meta-analysis [7]. The quality of life of elderly patients on hemodialysis was found to be severely reduced by anxiety and depression, according to a study conducted in Japan [8]. Researchers have attempted to lessen the likelihood of suicidality [11,12], and various studies have found that sadness and anxiety are strong predictors of suicidal thought [9,10]. As a result, we set out to investigate the breadth of comorbid psychiatric diseases present among people receiving hemodialysis in urban centres and to evaluate how medical and psychiatric diagnoses influence patients' experiences of quality of life.

Materials and Methods

This cross-sectional study was conducted at Institute of Kidney Diseases Hayatabad, Peshawar and PAF Hospital Islamabad for the duration from December 2021 to May 2022. Total 220 patients on hemodialysis of either gender with ages 25-70 years were enrolled. Detailed demographics including age, gender, body mass index, education, and marital status were recorded after taking informed written consent. Patients with severe mental illness and those with no consent were excluded.

In order to collect all of the data, a questionnaire that was administered by an interviewer was used. The principal investigator of the trial provided each patient with an explanation of the aims of the study as well as its methods. Questions from the Patient Health Questionnaire-9 (PHQ-9) were utilised in order to ascertain the prevalence of clinical depression in hemodialysis patients. Mild depression (a score of 15-19), moderate depression (a score of 10-14), therapy for psychiatric disorders (a score of 5-9), and severe depression (a score of 20 or higher) (a score of 20 or above) were considered. If the score for depression was 5, then it was considered to have a positive connotation; otherwise, it was considered to have a negative connotation. In addition, the validity and reliability of the questionnaire was evaluated by two highly acclaimed neurologists (reliability index 0.85).

For all of the statistical analysis, the Statistical Package for the Social Sciences (SPSS) version 24.0 was utilised. Calculations were made to determine percentages and frequencies for categorical characteristics such as sex, marriage, education level, and depression. The standard deviation and mean were computed for variables such as age and the length of time the patient had been unwell. In order to stratify according to disease duration, a Chi-square test was carried out. A statistically significant p-value was determined to be lower than 0.05.

Results

There were 135 (61.36%) males while 85 (38.64%) patients were females (Figure No 1). Mean age of patients was 46.85±12.38 years. 125 (56.82%) patients had time duration for hemodialysis <5 years while 95 (43.18%) had more than 5 years. 75 (34.09%) patients were illiterate while 145 (65.91%) were literate. 148 (67.27%) were married while 72 (32.73%) were unmarried. 135 (61.36%) patients had urban residency and 85 (38.64%) had rural residence. (Table 1)

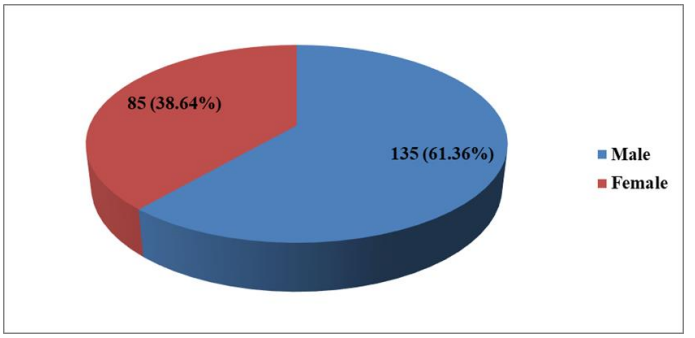

Figure 1. Gender-wise Distribution among All the Patients

Table 1
Baseline Details of All the Included Patients

Variables	Frequency No.	Percentage
Mean Age (years)	46.85±12.38	-
Time Duration		
<5 years	125	56.82
>5 years	95	43.18
Education		
Literate	145	65.91
Illiterate	75	34.09
Marital Status		
Married	148	67.27
Unmarried	72	32.73
Residence		
Urban	135	61.36
Rural	85	38.94

Depression was found in 160 (72.73%) patients, among them 30 (13.64%) patients had mild, 75 (34.09%) had moderate and 55 (25%) had severe depression. (Figure 2)

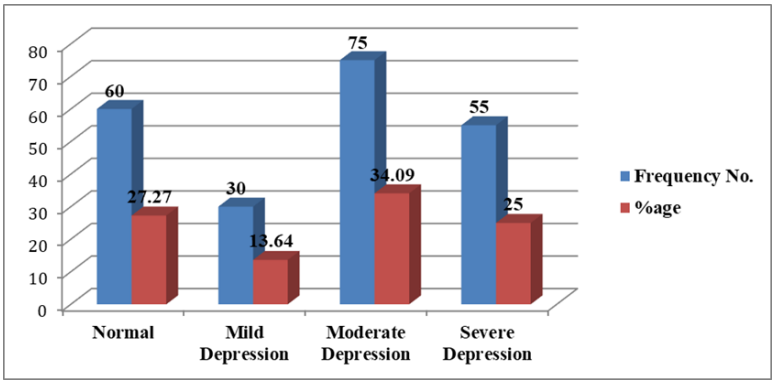

Figure 2. Frequency of Depression among All the Patients

Patients had time duration on hemodialysis less than 5 years found more depressive as compared to those who had time duration >5 years 110/125 (88%) Vs 50/95 (52.63%). The difference was statistically significant with p-value <0.05. (Table 2)

Table 2
Stratification with respect to time duration

Time Duration	Frequency No.	Percentage	P-value
<5 years	110	88%	<0.05
>5 years	50	52.63%	

Discussion

There was a correlation between CKD and depression in a number of different studies [13]. In addition to the food restriction, this can be ascribed to a number of other variables, including a lack of physical activity, a loss of money for the family, and taking on a leading role in the family. It's possible that this will have a negative impact on the persons' quality of life [14]. It is important to note that dialysis has been shown to potentially affect cognitive function [15]. Depression was found to have a higher incidence during dialysis, according to one of the studies that linked depression with CKD [16]. Specifically, the incidence of mental disorders associated with CKD can range anywhere from 19% to 60%, which is higher than the incidence of mental disorders associated with heart failure and diabetes [17].We conducted present study with aimed to determine the prevalence of depression among patients receiving hemodialysis. In this regard 220 patients were examined. Majority of patients 61.36% were males while females were 38.64%. Mean age of patients was 46.85±12.38 years. 125 (56.82%) patients had time duration for hemodialysis <5 years while 95 (43.18%) had more than 5 years. These results were comparable to some previous studies in which male were predominant as compared to females who were receiving hemodialysis and average age of patients was 48 years [18-19].

In our study, depression was found in 160 (72.73%) patients, among them 30 (13.64%) patients had mild, 75 (34.09%) had moderate and 55 (25%) had severe depression. Many of studies demonstrated that depressive symptoms were highly associated with chronic kidney disease patients receiving hemodialysis [20-21]. A study conducted by Elkheir, Habab Khalid et al [22] reported that out of 75 hemodialysis patients 68% had depression. Othayq A et al [23] reported in their study that out of 211 patients on hemodialysis 43.6% patients had depression, among them 12.8% patients were mild, 15.6% were moderate and 15.1% were severe depressed.

Another study by Khadka S et al [24] demonstrated that 84.8% patients had depression, in which 21.7% had mild, 30.8% were moderate and 32.6% had severe depression. Those with chronic kidney disease, including those who are undergoing predialysis, have a much increased risk of developing depression [25], in comparison to both the general population and patients with other chronic diseases. Depression can have a negative impact on clinical outcomes by reducing a patient's compliance with dialysis and pharmacological treatment, altering the

function that the immune system plays, and having a deleterious influence on their nutritional state [26].

In present study we found that those patients who had time duration on hemodialysis less than 5 years found more depressive as compared to those who had time duration >5 years 110/125 (88%) Vs 50/95 (52.63%). The difference was statistically significant with p-value <0.05. These results showed similarities to those found in a study that was carried out by Elkheir, Habab Khalid, and colleagues [22]. In that study, the researchers reported that new patients who had been undergoing dialysis for less than one year had more symptoms of depression (66.7%), compared to those who had been undergoing dialysis for 2–3 years (21.6%), or more than 3 years (11.8%). The chi-square analysis revealed substantial correlations between depressive symptoms and the length of time spent on dialysis.

Conclusion

Depression is one of the most common mental illness in all over the globe and highly associated with severe morbidity. From this study we concluded that patients on hemodialysis are highly associated with depression. We also found that those patients who had time duration on hemodialysis less than 5 years were found more depressive as compared to those who had time duration >5 years.

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