EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 10
Issue: 8
274-279
Year: 2023

ASSESSMENT AND PREVALENCE OF DEPRESSION AND ANXIETY IN CHRONIC KIDNEY DISEASE PATIENTS STAGES 3-5D

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Article Received on 09/06/2023 **Article Revised on 30/06/2023** **Article Accepted on 20/07/2023**

ABSTRACT

Background: Chronic kidney disease (CKD) is the chronic deterioration of kidney function over time with high morbidity and mortality rates. In most chronic illnesses psychiatric disorders coexist as comorbidities. Researches have confirmed that presence and prevalence of anxiety and depression is more common among CKD patients as compared to other chronic conditions. Mental health issues in CKD patients affect morbidity, mortality and prognosis. This worsens overall health related quality of life. **Methodology**: A cross sectional, observational study in 120 patients was conducted over a period of 3 months to screen and detect the prevalence of depression and anxiety using the Hospital Anxiety and Depression scale (HADS) questionnaire in CKD patients of stages 3-5D. **Results:** Prevalence was calculated using Chi square test. depression was 14.1% and anxiety was 20%. Also, among the population the prevalence of borderline depression was 19.1% and borderline anxiety was 17.5%. Anxiety and borderline depression were more prevalent compared to their counterparts and the severity of these advanced with increase in age. **Conclusion:** This study has shown that 1/3rd population has signs of anxiety and depression. Hence, prevalence of psychological comorbidities in CKD patients can explain the need to provide large scale screening using clinician validated scales so that their health-related outcomes would be better if their psychological health improved. This ensures that highest level of care is provided for the patient.

KEYWORDS: chronic kidney disease, anxiety, depression, dialysis, prevalence.

INTRODUCTION

Chronic kidney disease (CKD) is a condition that refers to a chronic deterioration of kidney function over time. It is recognized as a major health problem which is detected and defined by the presence of abnormalities of kidney structure or function (or both) present for at least 3 months.[1]

To facilitate and assess the severity of CKD, the National Kidney Foundation developed criteria as part of its Kidney Disease Outcomes Quality Initiative (NKF /DOQI) classified CKD patients into five stages:
Stage 1: Normal eGFR R 90 mL/min per 1.73 m^2 and persistent albuminuria
Stage 2: Mild reduction in eGFR between 60 to 89 mL/min per 1.73 m^2
Stage 3: Moderate reduction in eGFR between 30 to 59 mL/min per 1.73 m^2
Stage 4: Severe reduction in eGFR between 15 to 29 mL/min per 1.73 m^2
Stage 5: Kidney failure eGFR < 15 mL/min per 1.73 m^2 or end-stage renal disease.[2]

Depression is a mood disorder which is mainly characterized by a list of cognitive and somatic symptoms like feeling of sadness, sleeplessness, loss of interest in usual activities, worthlessness, loss of appetite and sexual desire. If these symptoms of depression persist for more than 2 weeks, clinical diagnosis of depression should be performed.[3]

Anxiety is a normal emotion which activates an adaptive and anticipatory response to stressful or challenging events. It turns to a mental health disorder if it occurs without any reason in abnormal conditions.[4]

EPIDEMIOLOGY

CKD is identified as a major global public health issue. People with CKD have a high morbidity and mortality rate, creating a huge financial burden on health-care systems due to hospitalizations and the high cost of chronic dialysis and kidney transplants. Approximately, 8-16% of the general population is suffering from CKD and 1.9 million patients are undergoing RRT (Haemodialysis, Peritoneal dialysis or kidney transplantation).[5] Its prevalence is higher in lower socioeconomic groups and certain ethnic population. Prevalence of CKD gradually increases with age to about 30% in people >70yrs. Based on the population representative surveys conducted and by using the equations that derive eGFR, in developed countries approximately 5-6% are prevalent of moderate to severe CKD (stages 3-5).[1] The incidence rate of CKD is approximately 200 cases per one million population in many countries.[6]

According to the National Comorbidity Survey Replication, 16.2% of the population in their life had a history of Major Depressive Disorder whereas more than 6.6% population had an episode of depression in past 12 months. Compared to men, women have higher risk for depression from their early adolescence until mid-50's with life time rate of 1.7 to 2.7 times greater and also both genetic and environmental factors influence the prevalence of depression. Though depression may occur at any age, highest rates of major depression occur between the age group of 18 to 29 years. The prevalence of Major depressive disorder is estimated to be 20.4% in women and 9.6% in men in individuals aged 65 to 80 years in their lifetime. Depressive disorders are common in adolescence period with comorbid substance abuse and leads to suicide attempts, and ultimately causes deaths in these young patients.[7]

Anxiety disorders in general are more common in individuals with social issues, women, and people with a family history of anxiety and depression. These are a group of heterogenous illnesses which develop before 30 years of age.[8]

CORRELATION OF ANXIETY AND DEPRESSION WITH CKD

Usually, psychiatric disorders coexist as comorbidities with most of the chronic illnesses which also include chronic kidney disease. Researches have confirmed that presence and prevalence of anxiety and depression are more common among chronic kidney disease patients.

PREVALENCE

Among the patients undergoing dialysis, prevalence rates of symptoms of anxiety and depression were found to be 27.9% and 31.2% respectively.[6] Some studies have exemplified that compared to other chronic diseases, chronic kidney disease (CKD) patients are demonstrated to have higher prevalence rate of depression.[3]

Prevalence rates of anxiety and depression in chronic kidney disease (CKD) patients were estimated to be between 12-52% and 20-30% respectively.[9]

Due to increasing number of comorbidities, lifelong diagnosis and treatment, financial burden due to disease, depression is found to be one of the most important and commonly occurring psychiatric illness in chronic kidney disease patients worldwide.[10] In dialysis patients, depression not only effects the mortality but also increases the dialysis withdrawal and the rate of hospitalizations. Chronic Kidney Disease patients undergoing dialysis experience psychological pressure after therapy, which may occur in the form of insomnia, anxiety, difficulty concentrating, loss of appetite and life spirit, feeling hopelessly exaggerated. This psychological pressure occurs mainly as the patient undergoing dialysis is dependent on the appliance.[11]

MATERIALS AND METHODS

This study was conducted in the nephrology department of ESIC Medical College and Superspeciality Hospital, Telangana, India for three months.

A prospective, cross-sectional study was performed to assess the prevalence of depression and anxiety in chronic kidney disease patients of stages 3 to 5D.

Cockcroft gault equation was used to calculate the estimated GFR.

Subjects who belonged to stage 3-5D of age 18-80 of either sex were included and those who has pre-existing mental health issues and those who belonged to stage 1-2 were excluded. 120 willing patients CKD patients were recruited and screened for the presence of depression and anxiety.

The hospital anxiety and depression scale was used to assess the mental health of subjects. The HADS scale has been found to be a reliable instrument for detecting states of anxiety and depression in the setting of hospital outpatient clinic.

STATISTICAL ANALYSIS

SPSS statistics software was used to perform the Chi square test and to analyze the categorical variables in the collected data. The P value <0.05 was considered statistically significant.

RESULTS

Table 4.1.1: Gender wise distribution.

Gender	Number of subjects (n=120)	Percentage
Male	90	75%
Female	30	25%

INFERENCE: Male subjects were predominant in count with comparison to the female subjects, accounting for measuring the outcome parameters.

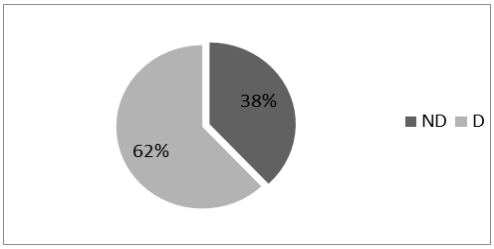

Figure 4.1.1: Dialysis vs Non dialysis.

INFERENCE

It represents the dialysis and non-dialysis proportion in the sample population.

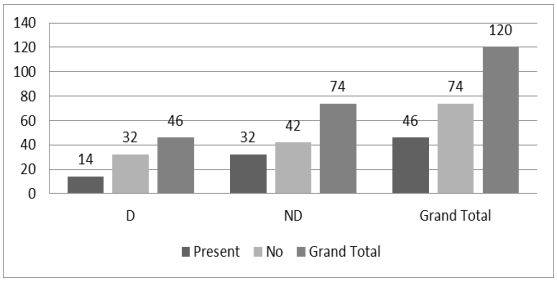

Fig 4.1.2: Illustration of sample population with Diabetes (D) & Non Diabetes (ND) parameter.

INFERENCE

This graph depicts the amount of subjects in the sample population with diabetes, out of 120 CKD patients.

Non dialysis patients 14 are diabetic and in case of dialysis patients 32 are diabetics.

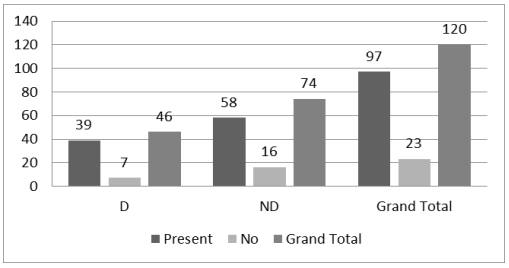

Fig 4.1.3: Illustrates the sample population with Hypertension.

INFERENCE

This graph depicts the amount of subjects in the sample population with hypertension, out of 120 CKD patients Among non-dialysis patients 39 are Hypertensive and in case of dialysis patients 58 are Hypertensive.

Table 4.1.2: HADS score and its corresponding interpretation.

HADS score	Interpretation
0-7	Normal
8-10	Borderline case
11-21	Abnormal

INFERENCE

The HADS scale representation implies that the increase in the score would proportionally denote relevance to the abnormality in the mental status of the present.

Table 4.1.3: Anxiety distribution table.

Anxiety Age (yrs)	Borderline	CASE	Percentage	NORMAL	Percentage	TOTAL	AGE%
20-29	2	0	1.6%	2	1.6%	4	3.3%
30-39	4	4	6.6%	7	5.8%	15	12.5%
40-49	5	6	9.1%	23	19.1%	34	28.3%
50-59	8	7	12.5%	30	25%	45	37.5%
60-69	2	3	4.1%	11	9.1%	16	13.3%
70-80	0	4	3.3%	2	1.6%	6	5.0%
TOTAL	21	24	37.5%	75	62.5%	120	100.0%

INFERENCE

The above table depicts the age wise percentage of borderline anxious, anxious and normal subjects in the sample CKD patients.

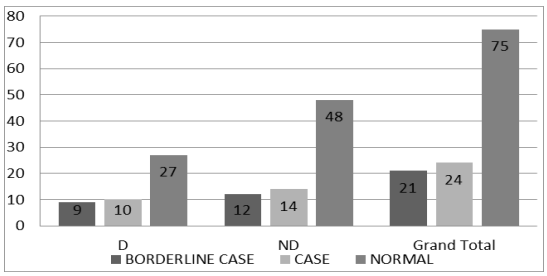

Fig. 4.1.4: Graphical representation of anxiety in sample population.

INFERENCE

The above graph depicts the number of patients who are anxious, borderline anxious and normal according to the HADS questionnaire. (D = Dialysis patients & ND = Non Dialysis patients).

From the above non-dialysis patients:9,10 and 27were accounted for borderline, case and normal condition respectively; dialysis patients:12,14,48 were accounted for borderline, case and normal condition respectively.

Table 4.1.4: Depression distribution table.

Depression Age (yrs)	Borderline	Case	Percentage	Normal	Percentage	Total	Age%
20-29	1	0	0.8%	3	2.5%	4	3.3%
30-39	0	2	1.6%	13	10.8%	15	12.5%
40-49	8	6	11.8%	21	17.5%	35	29.1%
50-59	8	8	13.3%	28	23.3%	44	36.6%
60-69	3	1	3.3%	12	10%	16	13.3%
70-80	3	0	2.5%	3	2.5%	6	5.0%
TOTAL	23	17	33.3%	80	66.6%	120	100.0%

INFERENCE

The above table depicts the age wise percentage of borderline depressed, depressed and normal subjects in the sample CKD patients.

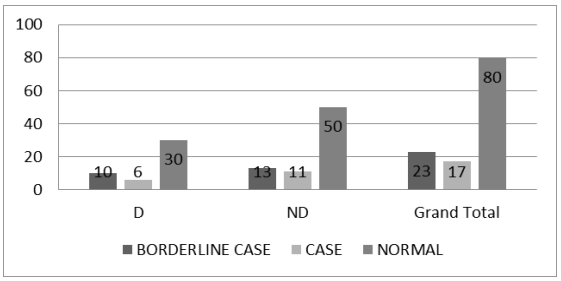

Fig 4.1.5: Graphical representation of depression in sample population.

INFERENCE

The above graph depicts the number of patients who are depressed, borderline depressed and normal according to the HADS questionnaire.

Table 4.1.5: Anxiety and Depression distribution table.

Proximities	Anxiety	Depression
Borderline	17.5%	19.2%
Case	20%	14.2%
Normal	62.50%	66.7%

INFERENCE

The above represents the population percentage having normal (62.50%, 66.7%), abnormal (20%, 14.2%) and borderline (17.5%, 19.2%) respectively for anxiety and depression.

Table 4.1.6: Statistical significance – analysis by SCHI -Square test.

	STAGE-ND&D					
Parameters	Patient category			CHI	P-VALUE	RESULT
Anxiety score-code	ND	D	Grand Total			
Case	10	14	24	0.47	0.792	NS
Borderline case	9	12	21			
Normal	27	48	75			
Grand total	46	74	120			
Depression score-code	ND	D	Grand Total			
Borderline case	10	13	23	0.35	0.84	NS
Case	6	11	17			
Normal	30	50	80			
Grand total	46	74	120			
A&d result-code	ND	D	Grand Total			
Borderline case	10	17	27	1.23	0.54	NS
Case	9	9	18			
Normal	27	48	75			
Grand Total	46	74	120			

ND – Non Dialysis patients; D – Dialysis patients

INFERENCE

The Chi square test has revealed that the data has no clear association between the chronic kidney disease and psychiatric illness.

DISCUSSION

As Chronic Kidney disease is a long term condition, it has an impact on mental health-especially contributing to mental stress due to the duration of dialysis and the inevitability of the disease progression leading to psychiatric comorbidities like depression and anxiety

further worsening the condition of the patient, often times leading to excessive hospitalization, higher health care costs and increased morbidity and mortality. The gender distribution in our study was: 90 (75%) men and 30(25%) women. A significant relationship between depression and anxiety with advancing age showing higher prevalence rates within the age group of 40-60 yrs. And 38% had diabetes, 81% had hypertension as a risk factor. 62% (n=74) of the population was on RRT by dialysis, while the remaining 38% (n=46) was on medical management.

In this present study, the prevalence of depression and anxiety were found to be 33.4% and 37.5% respectively, these results are in agreement with other studies those which reported 23.3% of depression and 33.3% anxiety out of 120 total CKD patients involved.[12]

Another prospective study involving 100 CKD patients, depression & anxiety prevalence was found to be 34% and 33% respectively which also supports our current study.[13]

Also, the socio demographic factors such as age and gender show a greater impact on CKD patients which may lead to the expression of anxiety and depression symptoms. From our study, males were more prone to anxiety and depression compared to females, 75% and 25% respectively. But that can be because our present sample population had more males than females, studies with a comparable male and female population would be more appropriate to provide the relationship between gender of the CKD patient and prevalence of the comorbid depression and/or anxiety.

Based on the findings of our study, as the CKD stage advances, prevalence and the severity of both depression and anxiety increases, where the prevalence of anxiety was found to be 8.3%, 12.5%, 79.1%, whereas, the prevalence of depression was found to be 5.8%, 11.7%, 82.3% in the stages 3, 4 and 5 respectively.

Large scale screening for CKD patients to identify patients who are at risk for developing these comorbidities will decrease the incidence of such issues and lead to better health related quality of life. This will aid the clinicians and other healthcare professionals in providing an optimized care plan.

CONCLUSION

A cross sectional, observational study was performed to assess the prevalence of depression and anxiety in chronic kidney disease patients of stages 3 to 5D. 120 willing CKD patients were recruited and screened for the presence of depression and anxiety.

16% and 13% from the non-dialysis population suffer from anxiety and depression respectively whereas 22% and 20% from the dialysis population suffer from anxiety and depression respectively.

20% and 18% of the population had anxiety and borderline anxiety whereas 14% and 19% of the population had depression and borderline depression. Hence, the prevalence of Borderline Depression was more than that of Borderline anxiety and the prevalence of Anxiety was found to be more compared to that of depression with reference to Hospital Anxiety and Depression scale (HADS).

Based on the findings of our study, as the CKD stage advances, prevalence and the severity of both depression and anxiety increases, where the prevalence of anxiety was found to be 8.3%, 12.5%, 79.1%, whereas, the prevalence of depression was found to be 5.8%, 11.7%, 82.3% the stages 3, 4 and 5 respectively.

Even with the handicap of a limited sample size and the percentage of the population having anxiety and/or depression not being statistically significant, it is important to acknowledge that mental health is affected when patients have CKD especially considering its prognosis, making it evident that special care should be given for the mental health of such patients and also to those who have borderline symptoms.

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