

Prevalence and clinical correlates of depressive disorder in chronic kidney disease patients in a tertiary care hospital

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ABSTRACT

Introduction-Chronic kidney disease (CKD) is a condition in which there is structural or functional damage to the kidneys and they are unable to function properly. Recent studies have shown that patients with CKD have three times more of depression than those in the general population. Depression in CKD patients is also associated with poor quality of life and adverse clinical outcome. Therefore, this study was conducted to evaluate the prevalence of depression and factors affecting them. **Materials & Method**-A total of 62 patients of either gender and aged ≥ 18 years diagnosed with CKD were enrolled. These patients were analysed for demographic parameters, stage of CKD, its duration, their co-morbidities and serum creatinine levels. Diagnostic and Statistical Manual (DSM) was used to screen depression. Montgomery-Asberg Depression Rating Scale (MADRS) was used to rate severity of depression. Suicidal ideations were assessed using the modified scale for suicidal ideation. **Result**-The mean age of the patients was 52.4 years. Among them 59.6% were male and 40.3% were females. In age group based analysis, majority (43.5%) of patients were found to be elderly. The prevalence of depression was more (62.4%) in the age group of 40–60 years. Among them 45.1% of them were in CKD stage V and 58% of the patients were having CKD for ≤ 3 years. Among these patients 46.7% had at least two or more comorbidities in which 55.1% were suffering from hypertension, diabetes Mellitus & dyslipidaemia. The level of serum creatinine showed that 51.6% had their levels < 5 mg/dl. Further, we found that 45.1% of patients among which 37% had severe depression. However, we found that majority of patients (56.4%) had low suicidal ideations. **Conclusion**-The findings of our study suggest that CKD patients should be concurrently evaluated for depression so that an early diagnosis of depression could be done which may help in improving the quality of life of CKD patients. Moreover, a standard rehabilitation program can also be designed which may be important and clinically beneficial for them.

Keywords: chronic kidney disease, depression.

Introduction

Chronic kidney disease (CKD) is a condition in which there is structural or functional damage to the kidneys and they are unable to function properly. This damage results in excessive fluid and waste accumulation in the blood. The prevalence of CKD is rising significantly and has become an escalating public health issue. The estimated number of people affected with CKD ranges from 11% to 13% globally. ^[1,2]It represents a major economic burden on healthcare system worldwide. ^[3]In these patients poor health, economic burden due to treatment, and complications related with disease adversely affects the quality of life, and psychosocial factors resulting in mood disorders, anxiety and depression. Recent studies have also shown that patients with CKD have three times more of depression

than those in the general population. ^[4] In addition, depression in CKD patients is also associated with poor quality of life and adverse clinical outcome. ^[5,6] Many studies affirm that there is existence of depression among patients with CKD. It has been estimated that at least 23.7% of patients with CKD suffers from depression. ^[7] Depression also increases the mortality in such patients. Hence, depression is an important concern that should be looked after simultaneously. The prevalence of depression and factors affecting them may vary in the Indian population due to variability in the ethnicity and socioeconomic factors. Hence, estimation of its prevalence and associated factors may help in implementing treatment modalities to improve the outcome and quality of life in such patients. Therefore, this study was conducted to evaluate the prevalence of depression and factors affecting it in patients with CKD

Materials & Method

This was a cross-sectional study conducted for the duration of six months (December 2020–May 2021) in the department of psychiatry with support from department of medicine in a tertiary healthcare centre of Bihar. A total of 62 patients of either gender and aged 18 years or above diagnosed with CKD who were receiving treatment, and willing to participate were enrolled in this study. These patients were initially analysed in context of some basic demographic parameters. Patients were then assessed for CKD and its duration on the basis of glomerular filtration rate (GFR). These patients were then looked for their co-morbidities and serum creatinine levels. Diagnostic and Statistical Manual (DSM), 5th Edition criteria was used to screen depression. ^[8] Montgomery–Asberg Depression Rating Scale (MADRS) was used to rate the severity of depression. MADRS is a 10- item rating scale with each item being scored from 0 to 6, ranging from 0 to 60. ^[9] Suicidal ideations were assessed using the modified scale for suicidal ideation. This is an 18- item scale, where each item is rated from 0 to 3, yielding to a total score ranging from 0 to 54. ^[10] Patients with cognitive impairment, critically ill, not willing to participate or unable to complete the interview were excluded from the study. Chi- square test was used to evaluate the effect of different parameters on depression in CKD patients. The Spearman's correlation coefficient was used for the correlation between various parameters. $P < 0.05$ was considered statistically significant.

Results

In this study mean age of the patients was 52.4 years and among them 59.6% were male and 40.3% were females. In age group based analysis, majority (43.5%) of patients were found to be elderly. The prevalence of depression was more (62.4%) in the age group of 40–60 years. The patients were then assessed on the basis of GFR and we found that 45.1 % of them were in CKD stage V and 26% were requiring haemodialysis and hence were referred for the same. Among them 58% of the patients were having CKD for ≤ 3 years. Further, the recruited patients were assessed for co-morbidities and we found that 46.7% had at least two or more comorbidities and among them 55.1% were suffering from hypertension, diabetes Mellitus & dyslipidaemia. The level of serum creatinine was also evaluated in the enrolled patients and we found that 51.6% had their levels < 5 mg/dl. Depression was analysed among these categorised patients using DSM-5 as shown in Table No. 01. On evaluating different parameters statistically, we found significant statistical difference depending upon the age ($P = 0.0058$) and stage of CKD ($P = 0.041$). However, gender ($P = 0.66$), time duration of CKD ($P = 0.22$), co-morbidities ($P = 0.18$) and serum creatinine levels ($P = 0.09$) were not statistically significant with depression of patients. Further depression was also screened among the enrolled patients (un-categorised) as shown in Table No. 02 and we found that 45.1 % were depressed. The severity of depressive disorder was assessed using MARD-S

which revealed that 37% had severe depression (Table No. 02). However, we found that majority of patients (56.4%) had low suicidal ideations. (Table No. 02).

Table 1: Effect of various parameters on depression in chronic kidney disease patients

Parameters	Number of patients (%)	No depression n (%)	Moderate depression n (%)	Severe depression n (%)
Gender				
Male	37 (59.6%)	20 (54%)	11 (29.7%)	06 (16.2%)
Female	25 (40.3%)	15 (60%)	07 (28%)	03 (12%)
Age				
18-39	11 (17.7%)	08 (72.7%)	02 (18.1%)	01 (09%)
40-60	24 (38.7%)	09 (37.5%)	11 (45.8%)	04 (16.6%)
>60 Years	27 (43.5%)	17 (62.9%)	07 (25.9%)	03 (11.1%)
Stage of CKD				
CKD I - IV	34 (54.8%)	19 (55.8%)	11 (32.3 %)	04 (11.7%)
CKD V	28 (45.1%)	12 (42.8%)	10 (35.7%)	06 (21.4%)
Duration of CKD (years)				
≤ 3	36 (58%)	21 (58.3%)	11 (30.4%)	04 (11.1%)
> 3	26 (41.9%)	11 (42.3%)	09 (34.6%)	06 (16.6%)
Comorbidities				
Hypertension, Diabetes Mellitus & Dyslipidaemia	16 (55.1%)	07 (43.7%)	05 (31.2%)	04 (25%)
Hypertension & Diabetes Mellitus	13 (44.8%)	08 (61.5%)	03 (23%)	02 (15.8%)
Levels of serum creatinine (mg/dl)				
<5	32 (51.6%)	26 (81.2%)	04 (12.5%)	02 (6.2%)
>5	30 (48.3%)	16 (53.3%)	06 (20%)	8 (26.6%)

Table 2: Distribution of patients with depression and suicidal ideations based on different criteria

Criteria/scale/score	Frequency, n (%)
Diagnostic and statistical manual-5 criteria	
No depression	34 (54.8%)
Moderate depression	18 (29%)
Severe depression	10 (16.1%)
Montgomery-Asberg depression rating scale	
No depression	10 (16.1%)
Mild depression	13 (20.9%)
Moderate depression	16 (25.8%)
Severe depression	23 (37%)
Modified scale for suicidal ideation score	
No	12 (19.3%)
Low	35 (56.4%)
Mild to moderate	10 (16.1%)
Severe	05 (08%)

Discussion

In chronic kidney disease the glomerular filtration rate is $<60 \text{ mL/min/1.73 m}^2$ for 3 months or more, irrespective of the cause. The patients of CKD are more prone to develop depression and the reason may be attributed to various factors like; comorbidities, long-term treatment of CKD, financial burden due to disease etc. Thus this study was conducted to evaluate the prevalence of depression in CKD and factors affecting them. On analysing the patients on the basis of age group, we found that the mean age of CKD patients in our study was in accordance to study of Rai et al. ^[11] In our study we saw a male preponderance in case of CKD which was also reported by Chiang et al. ^[12] The age group more commonly affected with depression in our study is consistent with the findings of Yu et al. ^[13] The reason for more prevalence of depression in this age group may be due to financial liabilities and insecurity due to prolonged illness, and disruption in personal and professional life. On analysing the co-morbidities, we found hypertension and diabetes to be the most common comorbid conditions. These findings were in congruence to the SEEK study. ^[14] The Diagnostic and Statistical Manual of Mental Disorders-5, published by the American Psychiatric Association was used to assess the prevalence of depression. It is a standard set of criteria used to diagnose mental disorders and has been used by many studies examining the prevalence of depression in CKD. ^[12, 15] Further, the severity of depressive disorder was assessed using Montgomery-Asberg Depression Rating Scale (MADRS), which has also been used by many other studies. ^[16-19] It is a gold standard clinician rating scale drawn from the Comprehensive Psychopathological Rating Scale (CPRS) consists of 10 items evaluating core symptoms of depression. Nine of the items are based upon patient report, and one is on the rater's observation during the rating interview. MADRS items are rated on a 0–6 continuum (0=no abnormality, 6=severe). MADRS is quick to administer, and addresses core mood symptoms such as sadness, tension, lassitude, pessimistic thoughts, and suicidal thoughts. ^[20] The Suicidal ideations were assessed using the modified scale for suicidal ideation. ^[21] On analysing we found that majority of patients had low suicidal ideations which is somewhat in accordance to study of Gupta et al. ^[22] Further, patients were assessed in context of stages of CKD and we found that, 45.1% of CKD patients were in stage V which was similar to the finding of Ahlawat R et al. ^[23] The prevalence of depression was more in stage V patients which may be attributed to dialysis as usually it is done in stage V CKD. Hence, the severity of CKD could also be the reason for more prevalence of depression in these patients. ^[22, 24]

Conclusion

In this study, we found that near to half of the CKD patients (45.1%) were suffering from depression among which 37% had severe depression. These findings suggest that CKD patients should be concurrently evaluated for depression so that an early diagnosis of depression could be done which may help in improving the quality of life of CKD patients. Moreover, a standard rehabilitation program can also be designed which may be important and clinically beneficial for them.

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