Original Research Article

Evaluating depression and anxiety symptoms associated with chronic kidney disease in the central indian tertiary care hospital- a cross sectional study

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Received: 16-10-2020 / Revised: 31-12-2020 / Accepted: 21-01-2021

Abstract

Background: Chronic kidney disease is one such debilitating disease often associated with other medical comorbidities and needing continued long term treatment. Depressive and anxiety symptoms are quite commonly reported in medical illness and CKD in particular but very few studies have focussed on these aspects in Indian population. **Aim:** The aim was to explore the depressive and anxiety symptoms in patients with chronic kidney disease. **Methods:** Present cross sectional study was performed on 120 patients with Chronic kidney disease attending Department of General Medicine of the tertiary care Medical College. The patients were assessed on Hospital Anxiety and Depression Scale for presence of depressive and anxiety symptoms. **Results:** Clinically significant depressive and anxiety symptoms were present in 23.3% and 33.3% of the patients respectively. The total score of Hospital Anxiety and Depression Scale had significant correlation with age, gender, occupation and dialysis. **Conclusion:** Patients with CKD have high depression and anxiety symptoms. Hence proper evaluation for anxiety and depressive symptoms and early interventions should be of paramount importance to improve the quality of life and favourable outcomes in these patients.

Keywords: Anxiety, Chronic kidney disease [CKD], Depression, Hospital Anxiety and Depression Scale [HADS].

Introduction

Chronic kidney disease (CKD) is a chronic public health problem arising from various causes and disease pathways that alter the function and structure of the kidney irreversibly, over months or years.

The diagnosis of CKD rests on establishing a chronic reduction in kidney function and structural kidney damage leading to metabolic and electrolytic imbalance, uraemia, metabolic acidosis and anaemia[1]. Its commonly associated with other medical conditions predominantly hypertension and diabetes mellitus[2]. Like other chronic medical illnesses, patients with chronic kidney disease also have significant disability, poor quality of life and significant occupational as well as social dysfunction[3].Considering the chronic and varied progressive course of the disease ranging from pre-dialysis stage to those requiring dialysis or renal transplant, these patients need restrictions in diet and daily activities, frequent hospitalization, continued follow up and hence have to bear the higher cost of treatment[4].Along with these, presence of other chronic co-morbid conditions, physical symptoms of pain, disturbed sleep, poor sexual functioning and lack of social support further lead to significant psychological distress as well as emotional turmoil. Studies focussing on psychological aspects have predominantly studied depression and anxiety as more common presentations in these patients with CKD. A systematic review and meta-analysis by Palmer et al., 2013[5] showed a prevalence of 21.4%- 26.5% for depressive symptoms in CKD patients depending upon the methodologies using rating scales or clinical interview. Anxiety symptoms are also reported in a study by Cukor et al., 2008[6] in 45.7% of the 70 haemodialysis patients using Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) Axis I Diagnosis (SCID-I).

Depression and anxiety in CKD are often related with poor clinical outcomes that include increased frequency and longer hospitalizations, declining kidney function, progression to ESRD, greater frequency of dialysis withdrawal, poor health–related quality of life and mortality[7-9]. Although there are various studies describing psychiatric aspects of patients with CKD, the studies on Indian CKD patients are very limited with one study by Kumar et al. 2018[10] reporting 61.3% and 28% patients respectively with

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depression and anxiety in 150 CKD but these patients were undergoing dialysis. Hence this study was conducted to asses depressive and anxiety symptoms in CKD patients in a tertiary care medical college set up from central India.

Materials and methods

Study Design: The study had a cross sectional design with purposive sampling on 120 chronic kidney disease patients attending the Medicine department aided by Super speciality Nephrology services in a tertiary care Medical College of Chhattisgarh. The study included 18-75 years of age literate patients able to read and understand English. Patients with any previous history of Psychiatric illness were excluded. The patients approached were explained about the nature of the study and written consent was obtained for their participation. The study was approved by the Institute Ethics Committee.

Assessment: A set of questions were prepared to get the socio-demographic and clinical variables. Assessment for depression and anxiety was performed using Hospital Anxiety and Depression Scale (HADS). The HADS consists of 14 items, with seven items each for the anxiety (HADS-A) and depression (HADS-D) subscales. Each item is rated on a scale from 0 to 3 with 0–7 indicating lack of anxiety or depression, 8–10 indicating average levels of anxiety or depression, and score more than 11 showing increased levels of anxiety or depression. A HADS-A score or HADS-D score 8 was defined as reflecting anxiety or depression respectively.

The data analysis was done using the IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp. IBM Corp. Released 2011. All data are expressed accordingly as means ± standard deviations and percentages. It was done by descriptive and inferential statistics using the Chi-square and t-tests. $P < 0.05$ was considered as statistically significant.

Results

As shown in table 1, mean age of the total 120 CKD patients was 48.61 (± 13.77) years. 84 (70%) patients were males and 36 (30%) were females. Most of the patients were married (n=88; 73.3%). 104 (86.7%) patients belonged to Hindu religion and 16 (13.3%) were Muslims. Most of them were educated up to XII Std (n=92; 76.7%), followed by Graduates (n=24; 20%) and postgraduates (n=4; 3.3%). 59 (49.2%) patients were unemployed, 26 (21.7%) were homemaker; 13(10.8%) were farmers and 22 (18.3%) were unemployed. Treatment was under some or the other insurance cover in 96 (80%) patients. The duration of kidney disease was 47.37 (±32.93) months. Mean duration of dialysis was 53.47 (±33.13) months.

As shown in the table 2 & 3, in the total sample of 120 CKD patients, 23.3% (n=28) of the patients had higher levels of depression and 33.3% (n=40) had higher levels of anxiety as measured respectively by the depression and anxiety subscales of HADS (Table 2 and 3). There was significant correlation between these subscales with r value 0.868 and p value <0.05(0.0001) (Table 4).

As shown in table 5, the correlation of socio-demographic variables with HADS total score showed significant results with age gender occupation and dialysis where as other parameters like marital status, education and insurance were not significantly correlated.

Table 1: Socio-demographic and clinical variables

Demographic variables		No of patients	Percentage
Age			
	≤20 yrs	3	2.5
	21-30 yrs	5	4.17
	31-40 yrs	33	27.50
	41-50 yrs	24	20
	51-60 yrs	21	17.50
	61-70 yrs	34	28.33
	Mean±SD	48.61 + 13.77	(19-70Yrs)
Sex	Male	84	70
	Female	36	30
Marital Status	Married	88	73.3
	Single/ separated	32	26.7
Religion	Hindu	104	86.7
	Muslim	16	13.3
Years Of Education	5-9	12	10
	10-12	80	66.7
	Graduate	24	20
	Postgraduate	4	3.3
Occupation	Employed	22	18.3
	Farmer	13	10.8
	Unemployed	59	49.2
	Homemaker	26	21.7

Insurance Cover	Yes	96	80
	No	24	20
Duration of Renal Disease		47.37 (±32.93)	1-2 months
Duration of Dialysis		53.46±33.13	4-108

Table 2: Hospital Anxiety and Depression Scale- Depression subscale score

		N	%
HADS Depression Score	Normal (≤ 7)	92	76.7
	Borderline/ Abnormal (≥8	28	23.3

Table 3: Hospital Anxiety and Depression Scale- Anxiety subscale score

		N	%
HADS Anxiety Score	Normal (≤ 7)	80	66.7
	Borderline/ Abnormal (≥8)	40	33.3

Table 4: Correlation HADS depression score and HADS anxiety score Pearson's correlation coefficient

	Mean	Std. Deviation	N	Correlation 'r'	p-value
HADS anxiety score	5.36	4.469	120	0.868	0.0001
HADS depression score	5.50	5.44	120		

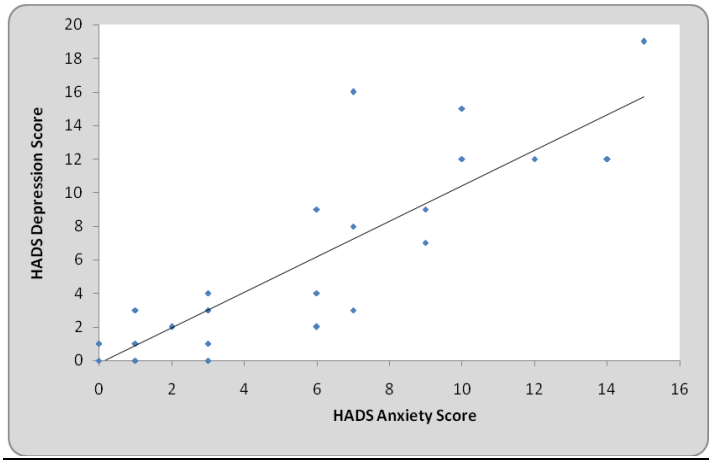

Table 5: Correlation between HADS total score and demographic variables

Demographic variables	Mean	SD	p-value
Age Group(yrs)			
≤20 yrs	10.00	0.00	11.15, p=0.0001,S
21-30 yrs	12.40	9.09	
31-40 yrs	10.81	10.85	
41-50 yrs	10.20	8.90	
51-60 yrs	21.33	4.10	
61-70 yrs	4.76	5.71	
Gender			
Male	9.33	8.80	2.75 p=0.007,S
Female	14.44	10.47	
Marital Status			
Single	11.62	10.34	0.52 p=0.60,NS
Married	10.59	9.33	
Education			
5-10	11.00	10.36	0.01

10-12	10.90	10.18	p=0.99,NS
Graduate	10.83	8.22	
Postgraduate	10.00	0	
Occupation			
Employed	6.19	8.68	4.87 p=0.003,S
Unemployed	9.69	9.72	
Farmer	16.61	8.09	
Homemaker	13.96	8.45	
Insurance			
Yes	10.16	9.72	1.61 p=0.11,NS
No	13.66	8.64	
Dialysis			
Yes	9	8.13	2.16 p=0.032,S
No	12.73	10.58	

Discussion

According to the results of the present study, out of the 120 total CKD patients, 23.3% (n=28) of the patients had higher levels of depression and 33.3% (n=40) had higher levels of anxiety. The results of our study are in agreement with other studies that reported prevalence of depression in patients with CKD in the range from 27% (5%to 58%) and anxiety 38% (12% to 52%)[11].

In a study by Lowman et al 2015[12],depressive and anxiety symptoms were present in 34% and 31 % of 100 CKD patients as assessed by Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) respectively. In other study by Cukor et al 2008[13], in CKD patients on haemodialysis, 45 % had anxiety symptoms and 29% had depressive symptoms as assessed by the structured clinical interview.

A few studies have reported higher level of depressive and anxiety symptoms ranging from 40-76%[1-17]. Our results should also take into consideration the fact that 80% of the patients had some or the other health insurance covering them for expenses of investigations medications as well as treatment of dialysis thereby reducing the financial burden and hence distress in these patients. Despite this insurance cover, the depressive and anxiety symptoms of our CKD patients are significantly more compared to the general population. In a study by Rebollo Rubio et al 2017,[18] on 152 patients starting Renal replacement therapy, anxiety and depression assessed by the Hospital Anxiety and Depression Scale questionnaire were present in 26.6% and 27% of patients respectively similar to our study. In one Indian study[1], on 150 patients specifically on haemodialysis, 61.3% patients had depression and 28% patients had anxiety as assessed using Hamilton rating scale for depression (HAMD) and Hamilton rating scale for anxiety (HAMA).

Socio-demographic factors are also known to be related to symptoms of anxiety and depression in general and CKD patients in particular. Our study also showed significant correlation between the HADS total score and age, gender, occupation and patients with dialysis. Similar findings were seen in a study by Paraskevi Theofilou 2011,[19] in 144 dialysis patients where elderly patients, females, less educated ones and those divorced/widowed were reported with higher scores of anxiety and depression as measured by Patient-reported assessments included General Health Questionnaire (GHQ-28), Center for Epidemiological Studies Depression Scale (CES-D), and State-Trait Anxiety Inventory (STAI I & II). Older patients in chronic kidney diseases are also reported in other studies to have higher scores of depression and may be attributed to their restricted social activities and interests[20-22].A study by Tyrrell et al. 2005[23], on elderly patients undergoing dialysis showed 60% of the patients to be depressed as assessed on Montgromery Asberg Depression Rating Scale. Similarly, studies also reported gender to have an effect with female patients presenting with higher scores of depression and anxiety. In a cross-sectional multi-centre study by Vazquez et al. 2004[24], on haemodialysis treatment, (n=152; 69 men, 83 women), women had impaired quality of life and had relation to higher prevalence of trait anxiety and depressive symptoms. Occupation status, to great extent depends upon the level of education and most studies have also reported it as a significant risk factor associated with intense anxiety in patients with CKD.

Conclusions

Patients with CKD have higher symptoms of depression and anxiety as measured by a more commonly used rating scale especially in liaison psychiatry. These psychological symptoms have significant correlation with socio-demographic variables.

This study was conducted in a single centre with a relatively limited sample size. We had used a single rating scale rather than structured clinical interview to study these symptoms. More studies with larger sample sizes and from multiple centres are needed in our Indian population to assess the presence of depressive and anxiety symptoms in these patients with severe progressive illness.

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Conflict of Interest: Nil
Source of support:Nil