



Prevalence of Depression in Chronic Kidney Disease patients on maintenance haemodialysis

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ABSTRACT:

Background: There is higher prevalence of depression in chronic kidney disease patients than in general population. This study was carried out to know the prevalence of depression in chronic kidney disease patients on haemodialysis.

Materials and Methods: This cross sectional study was conducted at Nephrology department government teaching hospital Shahdara, affiliated with Fatima Jinnah Medical University/ Sir Ganga Ram hospital, Lahore. After taking informed consent, data was collected from 150 patients of chronic kidney disease on maintenance haemodialysis . Diagnosis of depression was made according to Diagnostic and Statistical Manual of Mental Disorders, 4th Edition.

Results: Out of 150 patients, there were 81 (54%) males and 69 (46%) females. Depression was present in 105 (70%) patients of chronic kidney disease on haemodialysis. Depression was found to be more prevalent in age group 36-55 years p-value 0.001. There was also a significant association of depression in CKD with comorbidities p-value 0.001. There was no significant association of depression among CKD with gender and time since start of dialysis p-value 0.334 and 0.227 respectively.

Conclusion: Majority of chronic kidney disease patients undergoing haemodialysis were depressed .

Keywords: Chronic kidney disease, Haemodialysis, Depression

INTRODUCTION: Chronic kidney disease (CKD) comprises of a wide variety of various pathophysiological processes, associated with abnormal kidney function and a gradual decline of glomerular filtration rate (GFR). CKD patients are divided into five stages according to GFR by National Kidney Foundation's staging system.

Stage V is termed as end stage renal disease (ESRD)¹.

CKD is a very prevalent disease that affects about 10 % of world population². Its incidence and prevalence is increasing with time³. Its prevalence is high in Japan, Taiwan and USA⁴. The prevalence of CKD is 29.9 % in Pakistan⁵.

Depression is an acute affective experience that occurs in a physical disease or may be due to some medication⁶. CKD patients on haemodialysis have to bear physical discomforts that are related to their disease and they are encountered with family problems, stresses leading to increased risk of depression⁷. Socioeconomic factors, education status, the gender of the patient, and the presence/absence of features like abnormal liver function due to hepatitis, hypertension are the factors that affect the risk of depression⁸. The prevalence of depression is higher in CKD stage V patients than in general population⁹. It is 23 to 42% in the USA and Europe, 45.9% in Taiwan^{10,11} and 65.9 % in Pakistan¹².

Depression is frequently observed in CKD patients on haemodialysis but early detection and management (psychotherapy and/or pharmacotherapy) are not routinely done¹³. Evaluation for depression is important in haemodialysis patients as undiagnosed depression may have severe impact on the quality of life and continuation of haemodialysis. There is limited data available regarding the prevalence of depression in CKD patients on haemodialysis in Pakistan, therefore we investigated its prevalence.

MATERIALS AND METHODS:

Setting: Nephrology department government teaching hospital Shahdara, affiliated with Fatima Jinnah Medical University/ Sir Ganga Ram hospital, Lahore. **Study design** Cross sectional study **Duration** January 2017 to June 2017. **Sample Size** Data was collected from 150 CKD patients on maintenance haemodialysis. **Sampling Technique** Non-probability consecutive sampling.



Sample Selection: Inclusion Criteria CKD patients on maintenance haemodialysis for more than three months, Willing to publish their information.

Exclusion Criteria

Younger than 16 years, patients non compliant to treatment, patients having cognitive impairment and dementia, patients taking treatment for depression already. **Data Collection Procedure** After taking informed consent, 150 patients during haemodialysis session were interviewed. Conclusion of depression was made according to DSM-IV Criteria for Major Depressive Disorder. The investigator was available during the filling of proforma to explain any misconception the patients had about the questions. The investigator noted the patients answers on the form to prevent any bias on conclusion of depression. **Data Analysis** Data was entered and evaluated using SPSS version 20. Chi-square test was applied to find out any significant impact of age groups, co morbidities like diabetes and hypertension, duration since the start of haemodialysis and gender taking $p \leq 0.05$ as significant.

Operational Definitions: Chronic kidney disease

V : It is defined as kidney damage or glomerular filtration rate below 15 ml/min per 1.73 m² for three months or more regardless of the aetiology.

Haemodialysis It is a process where by waste products of blood are removed by exposing blood to a solution called dialysate which is separated by a semipermeable membrane called dialyzer. (Twice to thrice weekly four hours haemodialysis sessions are done in ESRD patients) **Depression** It is defined by the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)¹⁴, as having a loss of happiness or attraction for two weeks, accompanied by five or more psychological, behavioural and somatic symptoms.

Hypothesis: Depression is common in CKD patients on maintenance haemodialysis.

RESULTS:

A total of 150 patients of chronic kidney disease were included in the study. There were 81 (54%) male and 69 (46%) females (Table I). Depression was present in 105 (70%) patients of CKD. Depression was found to be more prevalent in age group 36-55 years p-value 0.001. There was also a significant association of depression in CKD with comorbidities p-value 0.001 (Table II). There was no significant association of depression among CKD with gender and time since start of dialysis p-value 0.334 and 0.227 respectively (Table II).

Table I:

Demographic Characteristics of Study Population:

Parameter		
Age in years (mean)	45.78±15.379	
Gender		
Male	81	54%
Female	69	46%
Total	150	100%
Comorbidities		
Diabetes Mellitus	9	6%
Hypertension	57	38%
Diabetes Mellitus+ Hypertension	66	44%
No Comorbidity	18	12%
Total	150	100%
Depression		
Present	105	70%
Absent	45	30%
Total	150	100%

Table II:

Stratification Of Depression among CKD patients With respect To Age, Gender, Comorbidities and time since dialysis started:

		Depression		Total	P-Value
		PRESENT	ABSENT		
Age Groups (years)	16-35	21	21	42	0.001
	36-55	57	12	69	
	>55	27	12	39	
Gender					0.334
Male		54	27	81	
Female		51	18	69	
Time Categories (months)					0.227
4-24		60	30	90	
25-48		36	15	51	
49-72		6	0	6	
73-96		3	0	3	
Comorbidities					0.001
DM		9	0	9	
HTN		42	15	57	
NIL		6	12	18	
DM + HTN		48	18	66	



DISCUSSION:

Depression is mostly acknowledged as a very common psychological issue in ESRD patients¹⁵. It is defined by both somatic and cognitive characteristics. The somatic features of depression are similar to uremia symptoms such as loss of appetite, sleep disturbance, pain, fatigue and gastrointestinal disturbances¹⁶. Depression is mostly ignored, sub diagnosed and remain untreated due to these overlap features with uremia. There is marked variation in the prevalence of depression in CKD patients on haemodialysis (25-60%) in various geographical areas^{17,18}. This wide range of prevalence is due to various diagnostic criterias that are used for depression. In this study, majority of CKD patients 105 (70%) were found depressed according to DSM-IV criteria.

The prevalence of depression in CKD patients on haemodialysis is 70%, which is significantly higher in comparison to the depression in general population of Pakistan (6-30%)^{19,20}, cancer patients (17.8)²¹, Ischemic heart disease (37)²² and CKD patients on haemodialysis in a developed country (27%)²³.

In this study, there was significant association of depression among CKD patients with age (p value 0.001) and most depression cases (57) were found in 36-55 years age group. Gender difference is found as an important factor in different studies in Pakistan. In these studies, the prevalence of depression is found twice in female patients as compared to male patients²⁴. But in this study, there was no significant association found among depression and gender of patients. Main logic for this result is that males are mostly earning hands and powerful in decision making of family matters, so they are more depressed than females when they suffer from some chronic illness. The other logic is that there are uremic toxins in their body which prevent the secretion of testosterone. There is inverse relation of testosterone with depression.

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That is why, low level of testosterone causes more depression in males²⁵. There was significant association found between depression and comorbidities (HTN,DM). Depression was present in 42 out of total 57 patients having only HTN, 9 out of total 9 patients having only DM and 48 out of total 66 patients having both HTN and DM.

HTN plays very important role in grief and death of CKD patients on haemodialysis. Usually patients miss the antihypertensive medicine on the day of dialysis. This may lead to high blood pressure readings and complications. Home monitoring of blood pressure should be carried out to minimize that problem²⁶.

Depression gives rise to anorexia, sleep disturbance and gastrointestinal problems. Symptoms of depression and uremia both lead to malnutrition. In this way depression further impairs the quality of life in CKD patients. Psychiatrist and psychologist should be involved in the management of depression in these patients so that the malnutrition caused by depression can be reverted²⁶.

There are various limitations in this study. Firstly, depression was not assessed at the start of haemodialysis of patients. So it can not be predicted that depression symptoms are due to uremia or the patients were depressed already before the initiation of haemodialysis. Secondly, the questionnaire of depression (DSM-IV) was carried out as an interview and it might have created information bias. Thirdly, psychosocial functioning of CKD patients was not assessed. Symptoms of uremia can not be separated from somatic symptoms of depression. A multicentric study must be carried out to find the prevalence ratio.

CONCLUSION: We conclude that there is very high prevalence of depression in CKD patients on maintenance haemodialysis in Pakistan. Screening should be routinely done for early diagnosis and prompt treatment.



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