Original Article

Depression and anxiety in hemodialysis patients

Mahjabeen Yaseen, Shagufta Naqvi, Muhammad Ali

Department of Medicine, Fazaia Ruth Pfau Medical College and Jinnah Medical and Dental College, Karachi, Pakistan

Objective: To explore the magnitude of depression and anxiety in hemodialysis patients.

Methodology: This cross sectional study was carried out from March to August 2019 at the hemodialysis units of Al Alamgir International Welfare Trust and Karachi Institute of Kidney Disease. All patients >18 years on hemodialysis for more than 6 months were included in the study. Patient with known psychiatric illness or neurological illness, on antidepressant and antianxiety medication, with any kind of addiction (Alcohol, illicit drugs) were excluded. Hospital anxiety depression scale (HADS) was used to assess the presence of anxiety and depression and their severity. A score 11-21 was considered abnormal disorder, a score of 8-10 borderline abnormal and a score 0-7 normal and indicated absence of disorder.

Results: Total 156 patients completed the questionnaire. Majority of the participants (52.9%) were male while (47.1%) female. About 43.6% were undergoing hemodialysis in morning, 39.1 % in afternoon and 17.3% in evening. Only (17.3%) of the participants were smokers while rest of the patients had no history of smoking. Out of 156 participants 50.6% of the participants had anxiety (14.74% had borderline anxiety and 35.9% had abnormal anxiety) while 55.8% had depression (26.3% had borderline depression and 29.5% had abnormal depression). Female participants were more anxious than male ($p<0.004$) and married had statistically significant anxiety ($p<0.032$).

Conclusion: Depression and anxiety is frequently found in patients with hemodialysis. Screening for symptoms of depression and anxiety should be part of routine care in patients with hemodialysis as timely diagnosis and management helps in improving the quality of life. (Rawal Med J 202;46:838-843).

Keywords: Hemodialysis, depression, anxiety.

INTRODUCTION

End stage renal disease (ESRD) has substantial morbidity and mortality. Majority of the patients need renal replacement therapy (RRT) in the form of renal transplantation or dialysis.[1] ESRD affects around 10% of world population. RRT is increasing very rapidly and it is expected to rise and become the fifth public cause of mortality by the year 2040.[2] ESRD patients face psychological stress and as they have to accept their chronic disease and its associated complications, adjusting their life style according to dialysis schedule and techniques, restrictions of diets and fluid intake, increase number of hospital visits and heavy financial burden.[3] Depression and anxiety is frequently encountered in hemodialysis patients. Around 38% and 27% of renal failure patients are affected by anxiety and depression, respectively.[4]

Depression in Chronic Kidney disease (CKD) is associated with increased risk of disease progression, early initiation of dialysis and increased cardiovascular events.[5] Different studies used different assessment tools to diagnose and assess the severity of depression in ESRD including Beck Depression Inventory (BDI), the Patient Health Questionnaire 9 (PHQ-9), and Zung Self-rating Depression Scale (ZSDS).[6,7,8] Anxiety disorders has also been assessed through various briefer and validated assessment tools including Beck's Anxiety Inventory (BAI) scale, Generalized Anxiety Disorder seven item scale and Hospital anxiety depression scale.[9,3] Both anxiety and depression in hemodialysis is associated with poor quality of life, reduced adherence to medications, recurrent hospitalization and increased mortality.[10]

METHODOLOGY

This cross sectional study was carried out from March to August 2019 at the hemodialysis units of Al Alamgir International Welfare Trust and Karachi

Institute of Kidney Diseases. All patients >18 years on hemodialysis for more than 6 months were included in the study. Patient with known psychiatric illness or neurological illness, on antidepressant and antianxiety medication, with any kind of addiction (alcohol, illicit drugs) were excluded. Ethical Approval was obtained from intuitional review boards of both the institutes.

The patients were categorized according to the number of points they score in HADS. Time required by this session took 20-25 minutes. HADS is a validated instrument and has 14 questions in total. Half of the questions related to depression and other half to assess anxiety disorder. Each question have a 0 to 3 score. For each Anxiety and Depression total range of score is from 0-21. A score11-21 was considered abnormal and signifies presence of disorder, a score of 8-10 was considered borderline abnormal and represent probably presence of disorder and a score 0-7 was considered normal and indicate absence of disorder.

Statistical Analysis: The data were analyzed using SPSS version 25. Statistical comparison was performed by using chi-square for different categorical variables. $p<0.05$ was considered significant.

RESULTS

Total 156 patients undergoing hemodialysis completed the questionnaire. Majority of the participants (52.9%) were male while (47.1%) were female (Table 1). Mainstream of the participants were receiving dialysis for more than 6 months. About 43.6% were undergoing hemodialysis in morning, 39.1 % in afternoon and 17.3% in evening. Only (17.3%) of the participants were smokers while rest of the patients had no history of smoking.

Out of 156 participants, 14.74% had borderline anxiety and 35.9% had abnormal anxiety while 26.3% had borderline depression and 29.5% had abnormal depression. (Table 2). The Association of Depression with co-morbidity, demographic and dialysis characteristics is shown in Table 3 while the Association of anxiety with co-morbidity, demographic and dialysis characteristics is shown in Table 4.

Table 1. Baseline characteristics of participants.

Variable	Number	%
Age		
<30	51	32.7
30 to 60	95	60.9
Above 60	10	06.4
Gender		
Male	82	52.9
Female	74	47.1
Educational Status		
None	39	25.0
Primary	50	32.1
Secondary	40	25.6
University	27	17.3
Career Status		
Unemployed	112	71.8
Employed	44	28.2
Marital Status		
Unmarried	47	30.1
Married	109	69.9
Smoking Status		
No	129	82.7
Yes	27	17.3
Duration of Dialysis		
<or equal to 6 months	67	42.9
>6 months	89	57.1
Dialysis shift		
Morning	68	43.6
Afternoon	61	39.1
Evening	27	17.3
Heart disease		
Absent	126	80.8
Present	30	19.2
Hypertension		
Absent	36	23.1
Present	120	76.9
Diabetes Mellitus		
Absent	113	72.4
Present	43	27.6
Hepatitis B		
Absent	142	91.0
Present	14	09.0
Hepatitis C		
Absent	137	87.8
Present	19	12.2

Table 2. HADS anxiety and depression frequency of participants.

Variable	Normal N (%)	Borderline abnormal N (%)	Abnormal N (%)
Anxiety	77(49.4)	23(14.7)	56(35.9)
Depression	69(44.2)	41(26.3)	46(29.5)

Table 3. Association of depression with co-morbidity, demographic and dialysis characteristics.

Variable	N	Depression category			X^2(df)	p-value[a]
		Normal	Borderline	Abnormal		
Age						
Less than 30	51	21(41.2)	14(27.5)	16(31.4)		
30-60	95	42(44.2)	26(27.4)	27(28.4)	1.847(4)	0.764[b]
Above 60	10	06(60.0)	01(10.0)	03(30.0)		
Gender						
Male	82	43(52.4)	20(24.4)	19(23.2)	5.208(2)	0.074
female	74	26(35.1)	21(28.4)	27(36.5)		
Education status						
None	39	15(38.5)	8(20.5)	16(41.0)		
Primary	50	21(42.0)	14(28.0)	15(30.0)		
Secondary	40	22(55.0)	10(25.0)	08(20.0)	5.661(6)	0.462
University	27	11(40.7)	9(33.3)	07(25.9)		
Career status						
Un-employed	112	50(44.6)	28(25.0)	34(30.4)	0.366(2)	0.833
employed	44	19(43.2)	13(29.5)	12(27.3)		
Marital status						
Un-married	47	26(55.3)	11(23.4)	10(21.3)	3.620(2)	0.164
Married	109	43(39.4)	30(27.5)	36(33.0)		
Dialysis duration						
<6months	67	30(44.8)	13(19.4)	24(35.8)	3.720	0.156
6 months	89	39(43.8)	28(31.5)	22(24.7)		
Dialysis shift						
Morning	68	27(39.7)	20(29.4)	21(30.9)	1.90(4)	0.754
Evening	61	31(50.8)	14(23.0)	16(26.2)		
afternoon	27	11(40.7)	7(25.9)	09(33.3)		
Smoking status						
Yes	27	14(51.9)	5(18.5)	08(29.6)	1.178(2)	0.555
no	129	55(42.6)	36(27.9)	38(29.5)		
Heart disease						
Absent	126	56(44.4)	34(27.0)	36(28.6)		0.854
Present	30	13(43.3)	7(23.3)	10(33.3)	3.16(2)	
Hypertension						
Absent	36	22(61.1)	08(22.2)	06(16.7)	5.917(2)	0.052
Present	120	47(39.2)	33(27.5)	40(33.3)		
Diabetes mellitus						
Absent	113	53(46.9)	30(26.5)	30(26.5)	1.873(2)	0.392
Present	43	16(37.2)	11(25.6)	16(37.2)		
Hepatitis B						
Absent	142	63(44.4)	39(27.5)	40(28.2)	3.117(2)	0.210
Present	14	6(42.9)	2(14.3)	6(42.9)		
Hepatitis C						
Absent	137	58(42.3)	37(27.0)	42(30.7)	1.660(2)	0.436
Present	19	11(57.9)	4(21.1)	4(21.1)		

Table 4. Association of anxiety with co-morbidity, demographic and dialysis characteristics.

Variable	N	Anxiety category			X^2(df)	p-value[a]
		Normal	Borderline	Abnormal		
Age						
Less than 30	51	21(41.2)	14(27.5)	16(31.4)		
30-60	95	42(44.2)	26(27.4)	27(28.4)	1.847(4)	0.764[b]
Above 60	10	06(60.0)	01(10.0)	03(30.0)		
Gender						
Male	82	50(61.0)	12(14.6)	20(24.4)	11.104(2)	0.004*
female	74	27(36.5)	11(14.6)	36(48.6)		
Educational status						
None	39	18(46.2)	5(12.8)	16(41)	4.305(6)	0.635
Primary	50	27(54.0)	7(14.0)	16(32.0)		
Secondary	40	21(52.5)	8(20.0)	11(27.5)		
University	27	11(40.7)	3(11.1)	13(48.1)		
Career status						
Un-employed	112	56(50)	19(17.0)	37(33.0)	2.267(2)	0.322
employed	44	21(47.7)	4(9.1)	19(43.2)		
Marital status						
Un-married	47	30(63.8)	7(14.9)	10(21.3)	6.860(2)	0.032*
Married	109	47(43.1)	16(14.7)	46(42.2)		
Dialysis duration						
< or equal to 6 months	67	31(46.3)	12(17.9)	24(35.8)	1.026(2)	0.599
>6 months	89	46(51.7)	11(12.4)	32(36.0)		
Dialysis shift						
Morning	68	34(50.0)	10(14.7)	24(35.3)	1.239(4)	0.872
Evening	61	31(50.8)	10(16.40	20(32.8)		
afternoon	27	12(44.4)	3(11.1)	12(44.4)		
Smoking status						
Yes	27	12(44.4)	7(25.9)	8(29.6)	3.286(2)	0.193
no	129	65(50.4)	16(12.4)	48(37.2)		
Heart disease						
Absent	126	66(52.4)	16(12.7)	44(34.9)	3.245(2)	0.197
Present	30	11(36.7)	44(34.9)	12(40.0)		
Hypertension						
Absent	36	18(50.0)	8(22.2)	10(27.8)	2.639(2)	0.267
Present	120	59(49.2)	15(12.5)	46(38.3)		
Diabetes mellitus					1.359(2)	
Absent	113	59(52.2)	16(14.2)	38(33.6)		0.507
Present	43	18(41.9)	7(16.3)	18(41.9)		
Hepatitis B						
Absent	142	72(50.7)	22(15.5)	48(33.8)	3.117(2)	0.210
Present	14	5(35.7)	1(7.1)	8(57.1)		
Hepatitis C						
Absent	137	65(47.4)	21(15.3)	51(37.2)	1.649(2)	0.438
Present	19	12(63.2)	2(10.5)	5(26.3)		

We did not found a statistically significant relationship between anxiety or depression and duration and shift of hemodialysis, marital status, educational level, employment position. Furthermore we also did not find correlation between anxiety or depression and comorbid conditions like heart disease, hypertension and diabetes, smoking habits and hepatitis B and C positive status.

DISCUSSION

CKD is commonly encountered in Pakistani population due to high prevalence of risk factors like Diabetes, Renal stone diseases and Hypertension. Poor prognosis, irreversible nature and financial burden of this diseases makes these individuals vulnerable to depression.[13] In our study, we found depression in 29.5% of participants which was lower as compared to the study by Makara Studzinska and Koślak (66%),[12] and Nomani et al (83.8%)[13] and Gadia P(66%).[14] This prevalence was comparable as reported by Chiang et al (22.6%)[15] and Mosleh and Alenezi (24.6%).[16] In our study, anxiety disorders is found in 35.9% of participants. Our finding is higher as reported by Mosleh and Alenezi (19.7%)[16] and Kumar et al (28%).[16,17]

Another study from Morocco reported Anxiety disorders in 25.2% hemodialysis patients by using Mini-International Neuropsychiatric Interview and European Quality of Life-5 Dimensions (EQ-5D).[18] A study by Mosleh and Alenezi from Saudi Arabia also observed significant anxiety among female participants.[16]

A study conducted in Pakistan reported higher prevalence of anxiety in male participants.[19] Another influencing factor could be genetic predisposition in certain individuals for psychiatric disorders or prior existence of such disorder before starting of dialysis which could produce false positives.

CONCLUSION

Depression and anxiety is frequently found in patients with hemodialysis. Screening for symptoms of depression and anxiety should be part of routine care in patients with hemodialysis as timely diagnosis and management helps in improving the quality of life.

Author Contributions:
Conception and design: Mahjabeen Yaseen, Shagufta Naqvi, Muhammad Ali
Collection and assembly of data: Mahjabeen Yaseen, Shagufta Naqvi, Muhammad Ali
Analysis and interpretation of data: Mahjabeen Yaseen, Shagufta Naqvi
Drafting of the article: Mahjabeen Yaseen, Muhammad Ali
Critical revision of article for important intellectual content: Mahjabeen Yaseen
Statistical expertise: Mahjabeen Yaseen, Shagufta Naqvi
Final approval and guarantor of the article: Mahjabeen Yaseen
Corresponding author email: Mahjabeen Yaseen: dr.mahjabeenyaseen@gmail.com
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