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Prevalence of Depression among the Patients with End Stage Renal Disease and their Care Givers, and its Associated Factors at a Tertiary Care Hospital in Karachi

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ABSTRACT

Objectives: The aim of our study is to determine the prevalence of depression among the patients with end stage renal disease and their care givers, and its associated factors at a tertiary care hospital in Karachi Pakistan. **Methodology:** The type of study is a cross sectional study, conducted for a period of 6 months from June 2015 to November 2015, at a tertiary care hospital in Karachi, Pakistan. The study population consisted of n= 400 individuals (n=200 patients, n=200 attendants). Beck's Depression Inventory questionnaire was employed to the study participants. Various factors such as gender, education level, employment and marital status, and various co morbidities were studied for their association with depression. **Results:** The prevalence of severe and moderate depression among the patients undergoing dialysis was 72.5%, and it was 35% among the caregivers having a p value of less than 0.001. The patients at the highest risk of depression were married, unemployed and with an income of less than Rs. 5000/-. The factors that had a positive association with depression were marital status (p value of less than 0.001), employment status (p value 0.01) low level of income (p value of 0.061), females (p value of 0.045), level of education below grade 10 (p value of 0.045). Anemia showed an association with depression (p value of 0.023). **Conclusion:** According to the results of our study a significant number of patients who were undergoing maintenance hemodialysis were depressed, and were two times likely to be depressed when compared to their care givers. Marriage and unemployment were the factors most associated with symptoms of depression. Household income showed a negative relation, but gender and education level were found to be not related to the incidence of depression.

Keywords: End stage renal disease, ESRD, hemodialysis, chronic kidney disease.

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INTRODUCTION

Chronic diseases like end stage renal disease not only have a physical component but affects the psychological aspects of the patients life as well,[1,2] side effects of medications, fatigue, immobility, unemployment or the inability to do work, disruption in sexual activities, fear of impending doom and death and dependency on mechanical support for sustaining life are the factors that have a negative impact on the life of a patient who undergoes dialysis.[3,4] Depression has now become widely recognized in patients with ESRD, and is second only to hypertension in its prevalence.[5,6] The prevalence rate of depression among this group has been reported to be from 10% to 60% depending on the patient population and the diagnostic tool utilized.[7,8,9,10] Many physicians only focus on the physical aspect of ESRD,[1] but it is well defined that depression hinders the patients treatment, by lack of adherence to treatment, suicidal thoughts and ideations and poor rates of long term survival.[11,12,13,14] A well rounded holistic approach is best in treatment of ESRD that involves a multi disciplinary team that addresses all the underlying physical and psychological issues.[15,16,17] The distress caused by maintenance dialysis is not bound till the patient but affects their whole family and care givers.[18,19] There are not many studies which address the prevalence of depression in the care givers of

such patients.[20,21] To that effect is the aim of our study, which is to determine the prevalence of depression among the patients with end stage renal disease and their care givers and its associated factors.

METHODOLOGY

The type of study is a cross sectional study, conducted for a period of 6 months from June 2015 to November 2015, at a tertiary care hospital in Karachi, Pakistan. The study population consisted of n= 400 individuals (n= 200 patients, n= 200 attendants). An Urdu translated 21 question Beck's Depression Inventory questionnaire was administered to the study participants after taking due consent. The exclusion criteria was all the patients who refused to participate in the study and those who were unconscious or mentally disoriented. Trained researchers administered the questionnaire facilitating the patients where ever the need arose. Other demographic variables such as gender, sex, education, occupation, marital status, income of the household etc were also obtained by using a pre designed proforma. According to the BDI-II the grading of depression was done, a grade of 0 to 13 was considered minimal, a grade of 14 to 19 was considered mild, a grade of 20 to 28 was considered moderate and a grade of 29 to 63 was considered to be severe depression. All the patients in the study population had dialysis for a minimum of three months duration. Data was analyzed using SPSS version 20. For demographic data frequencies was used and prevalence data was analyzed using chi square test to determine statistical significance. The mean depression score and associated risks and factors were analyzed using the student t test. Multiple logistic regression models was used to determine the predictive strength of depression with nominal variables such as age, gender, income, education, marital status, employment status, and it was analyzed further using the chi square test. A binary logistic regression was used to highlight predictors of depression in the patients. A p value of less than 0.05 was considered to be statistically significant.

RESULTS

Of the total patients who were undergoing dialysis for a minimum period of three months n= 200, there was a statistically significant difference in the distribution of age, marital status, level of education, and employment status, respective p values in table 1. While the care givers and attendants of the patients were relatively younger, educated and employed. Among the causes of end stage renal disease, the most common cause was diabetic nephropathy occurring in n= 85 (42.5%), the second most common cause was hypertension occurring in n= 70 (35%), other causes included renal calculi, systemic lupus erythematosus, glomerulonephritis and polycystic kidney disease. 85% of the patients had hypertension, while 43% patients had diabetes, 56.5% had hepatitis C, and 18% patients had anemia. The prevalence of severe and moderate depression among the patients undergoing dialysis was 72.5%, and it was 35% among the caregivers having a p value of less than 0.001. The mean scores of depression among the patient and care giver group was 25.6 +/- 11.3 and 14.2 +/- 9.0 respectively having a p value of less than 0.001. The mean score for risk factors were as follows, for marital status it was 20.2 in married and 16.9 in unmarried with a p value of 0.007, for the employment status the mean score was 22.5 in the unemployed and 11.7 in employed with a p value of less than 0.001, and with those having a low income level (less than Rs. 5000/-) the mean scores were 21.2 and for those in the high income group the value was 15.2 having a p value of less than 0.001, and showed a significant association. The patients at the highest risk of depression were married, unemployed and with a income of less than Rs. 5000/-. The factors that had a positive association with depression were marital status (p value of less than 0.001), employment status (p value 0.01) low level of income (p value of 0.061), females (p value of 0.045), level of education below grade 10 (p value of 0.045). There was no significant association between mean depression scores and hepatitis C (p value of 0.947), hypertension (p value of 0.443), ischemic heart disease (p value of 0.609) and diabetes mellitus (p value of 0.073), but anemia showed an association with depression (p value of 0.023).

Table 1: Characteristics and demographic variables associated with depression among patients and their care givers

Characteristic	Patient group n= 200	Care giver group n= 200	P value
Mean age in years	47	46	0.27

Gender			
Male	110 (55%)	113 (56.5%)	0.750
Female	90 (45%)	87 (43.5%)	
Marital Status			
Single	25 (12.5%)	56 (28%)	
Married	150 (75%)	144 (72%)	
Widowed/Divorced	25 (12.5%)	0 (0%)	<0.001
Employment status			
Employed	26 (13%)	79 (39.5%)	
Unemployed	174 (87%)	121 (60.5%)	<0.001
Level of Education			
Uneducated	57 (28.5%)	35 (17.5%)	
Matriculation	30 (15%)	28 (14%)	
Undergraduate	70 (35%)	84 (42%)	
Graduate and above	43 (21.5%)	53 (26.5%)	0.037
Household income			
Less than 5000Rs	120 (60%)	121 (60.5%)	
Between 5000 and 10,000 Rs	28 (14%)	35 (17.5%)	
Between 10,000 and 15,000 Rs	19 (9.5%)	23 (11.5%)	
Above 15,000 Rs	33 (16.5%)	21 (10.5%)	0.195
Grades of Depression			
Minimal	19 (9.5%)	68 (34%)	
Mild	36 (18%)	62 (31%)	
Moderate	70 (35%)	55 (27.5%)	
Severe	75 (37.5%)	15 (7.5%)	< 0.001

DISCUSSION

Depression is usually under diagnosed and undertreated in patients undergoing maintenance dialysis. A possible reason could be the overlapping symptoms of ESRD with depression such as disturbances of the sleep cycle, anorexia, sexual dysfunction, fatigue, and gastrointestinal abnormalities.[22] Studies was analyzed different methods to analyze depression among patients with ESRD with variability and different results.[23,24,25,26] In our study we utilized the BDI-II questionnaire which has been validated by various studies.[27] A prevalence of 72.5% of moderate to severe depression was found in our study population, which is slightly higher compared to other studies conducted in our country of Pakistan,[28,29] and is also higher than the prevalence of depression in Pakistani population at large which is of 33%. When a comparison is made between care givers and patients the depression is twice as much in the patients as compared to care givers being 72.5% and 35%. The literature has established relationships between various factors and depression, according to our study a lower income, marital status and unemployment were identified as having a positive association while gender and level of education did not show a very powerful association. An income of less than Rs. 5000/- in both patients and care givers showed a very high association with depression. And employment status independent of household income also shows a strong association. Prolonged unemployment is associated with increased stress,[31,32] in our study 87% of patients and 60.5% of care givers were unemployed, which reflected also as high mean depression scores. The major causes for this unemployment in the patients is fatigue and debility. Supporting a family is a huge responsibility, and in our study the married individuals shows increased risk for developing depression, however in other studies they report increased depression among single people.[32,33,34] Another study from Pakistan also reports similar results.[29] The mean depression score in females were significantly higher as compared to males, but the difference was only found in the patients group and not the care giver group. The depression in males could be due to the low levels of testosterone in their bodies due to the effects of uremia,[35] but this hypothesis does not explain the depression in male care givers. Increased knowledge about the disease and outcomes may make the current situation more tolerable hence decreased incidence of depression. According to a study, improved quality of life is associated with improved education among the patients and care givers.[34] In our study patients who had been educated beyond grade 10 showed a less severe form of depression and Badema Cengic et al showed similar trends that level of education directly influences the level of depression among patients undergoing hemodialysis.[36] Among the co morbidities and their association with depression only anemia was found

to be associated with depression (anemic versus non anemic, p value of 0.023), and which could be explained due to the fact that anemia renders fatigue, lethargy and weakness among the patients,[37] other diseases like hepatitis C and hypertension has been identified with depression in the studies,[38,39,40,41] however we were not able to find an association in our study. There were some limitations in our study partly due to the fact that for individuals the questionnaire had to be conducted as an interview and might form information bias, also a better result can be achieved if the study is made a longitudinal study, by establishing a baseline and ruling out other psychiatric illnesses, and by periodic administration of the BDI-II questionnaire which will increase the strength of study. The study highlights the facts of presence of depression among the patients undergoing hemodialysis and points to the fact that there is a need to assess patients undergoing hemodialysis for depression and to treat them accordingly, as that will yield better outcomes both psychologically and physiologically.

CONCLUSION

According to the results of our study a significant number of patients who were undergoing maintenance hemodialysis were depressed, and were two times likely to be depressed when compared to their care givers. Marriage and unemployment were the major factors associated with depression. Household income showed a negative relation, but gender and education level were not related to the incidence of depression.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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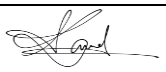
Dr. Kamal Ahmed	Concept, Drafting, Layout	
Dr. Zain Ali	Write-up, Statistical analysis, Final layout