ASSOCIATION OF DEPRESSION WITH SOCIO-DEMOGRAPHIC FACTORS IN PATIENTS UNDERGOING HEMODIALYSIS

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ABSTRACT

Objective: To determine the association of depression with socio-demographic factors in patients undergoing hemodialysis.

Study Design: Cross sectional comparative study.

Place and Duration of Study: Department of Medicine, Military Hospital Rawalpindi, from Jul 2014 to Jun 2015.

Material and Methods: Eighty eight patients undergoing hemodialysis were included. Data were collected using the Hamilton Depression Rating Scale. Demographic data, including age, gender, status within the family, education, duration of dialysis and social support was documented. Patients were graded on the basis of Hamilton scoring as: 0-9: normal, 10-13: mild depression, 14-17: moderate depression, above 17: severe depression.

Results: There were 61(69.3%) male and 27 (30.7%) female patients with mean age of 48.43 ± 12.69 years. The mean duration of dialysis was 35 ± 29.73 days. Sixty seven patients (76.1%) were identified as having depression. Out of these 28 (31.8%) had mild depression while 12 (13.6%) had moderate and 27 (30.7%) had severe depression. Mean depression score was higher in females (17.56 ± 6.67) than in males (13.13 ± 5.67) and the difference was significant (p=0.002). No association of depression with age (p=0.75), duration of dialysis (p=0.07), marital status (p=0.500), status within the family (p=0.47) or education (p=0.59) was revealed, however it was strongly and positively correlated with social support (p<0.005).

Conclusions: A reasonably high percentage of patients undergoing hemodialysis is likely to suffer from depression and by providing social support their depression can be reduced. Female patients are more likely to have depression and need more social support for alleviation of their depression.

Keywords: Depression, ESRD, Hemodialysis.

INTRODUCTION

Patients with end stage renal disease, on hemodialysis, experience devastating and disruptive physical consequences as well as severe psychological distress[1]. The latter may be due to fear of death and disability, changes in social relationships and self image, financial problems, disruption of activities, dependence on machines and uncertainty about the future. All these challenges result in various psychiatric issues, of which depression is one of the commonest[2,3]. The prevalence of depression ranges from 14% to 83% in hemodialysis patients in various studies and encompasses a wide spectrum ranging from mild to severe depression[4,5]. The symptoms of depression may be overshadowed by the more overt physical problems and may not be addressed. This could result in poor outcomes, it has been demonstrated that a higher burden of depressive symptoms is associated with increased mortality risk in hemodialysis patients[6]. Lopes et al, analyzing data from the Dialysis Outcomes and Practice Patterns Study (DOPPS) also found a higher risk of hospitalization as well as mortality in patients who were on dialysis[7].

A recent meta analysis and systematic review analyzed thirty one observational studies for the possible relationship of depression, measured as depressive symptoms, and mortality

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in patients on long term dialysis. This included five studies with more than 6000 participants. The authors concluded that though there was considerable heterogeneity between the studies, there is significant independent link between depressive symptoms and mortality in this population. They further recommended that the possible mechanisms for this relationship should be examined. Interventions to address depression need to be studied so that outcomes are improved in hemodialysis patients[8].

Even in the developed world, the subtle psychiatric needs of the patients may remain under diagnosed and under treated[9] as suggested by the DOPPS data but this problem becomes more significant in resource limited settings.

The prevalence of depression in patients on hemodialysis and its adverse effects on outcomes, underscores the importance of actively screening these patients for depression and addressing this treatable disorder[10]. In the United States, Centers for Medicare and Medicaid Services have proposed screening for depression as a quality indicator for these patients.

This study was undertaken to determine the frequency and severity of depression in patients undergoing hemodialysis and the relationship of depression to socio-demographic characteristics.

MATERIAL AND METHODS

This cross sectional comparative study was conducted at the Department of Medicine, Military Hospital, Rawalpindi using convenience sampling from July 2014 to June 2015. Eighty eight patients reporting for hemodialysis were interviewed after taking written informed consent. The protocol was approved by the Ethics Committee of the Hospital.

Patients undergoing conventional hemo-dialysis programme thrice weekly were included. Patients with age less than 18 years, speech or cognitive deficits, dementia, delirium or a previous history of psychiatric illness were excluded from the study. None of these patients had been formally screened for depression earlier and none were receiving treatment for it.

Data were collected using the Hamilton Depression Rating Scale which was filled according to patient's response. Demographic data, including age, gender, monthly income, occupation, status within the family (head of family vs dependant), education along with information regarding co-morbidities, as well as duration of dialysis was collected for each patient. They were also questioned regarding their perception of social support which was categorized as poor, average or good. Patients were graded on the basis of Hamilton scoring as: 0-9: normal, 10-13: mild depression, 14-17: moderate depression, above 17: severe depression.

Data were analysed using SPSS version 22. Mean and standard deviation was calculated for numerical variables whereas frequency and percentage was calculated for categorical variables. To compare numerical variable between two groups, independent samples t test was used whereas for the comparison between three groups one way ANOVA was used. Pearson correlation was used to find out correlation between continuous variables. Alpha value was kept at 0.05.

RESULTS

Eighty eight patients were included in the study. Out of these 61 (69.3%) were male and 27 (30.7%) were female. Mean age was 48.43 ± 12.69 years. Eighty two (93.2%) out of the total patients were married. Common co-morbidities which were identified included hypertension 34.1%, diabetes 14.8%, while 14.8% had both hypertension and diabetes. Less common ones included nephrolithiasis and polycystic disease. Good social support was present in 39% of cases, while 36.4% had average and 17% had poor social support. Seventeen percent had not received any education, 16% had received less than ten years of education and 67% had ten or more years of education. Thirty eight patients (43%) were heads of their family while 50 (56%) were dependants.

The mean duration of dialysis was 35 ± 29.73 days.

Sixty seven patients (76.1%) were identified as having depression. Out of these 28 (31.8%) had mild depression while 12 (13.6%) had moderate and 27 (30.7%) had severe depression as shown in fig-1. Mean depression score was higher in females (17.56 ± 6.67) than in males (13.13 ± 5.67) and the difference was significant (*p* value=0.002) as shown in table-I. Amongst the females found to have depression, 11 (47%) had mild, 2 (7%) had moderate, while 13 (48%) had severe depression. Only one female did not have any depression. The severity amongst males was identified as mild in 17 (28%), moderate in 10 (16%) and severe in 14 (23 %) whereas a large number i.e. 20 (33%) did not have any depression. as shown in fig-2. Our study did not reveal any association of depression with age (*p*=0.75), duration of dialysis (*p*=0.07), marital status (*p*=0.500), status within the family (*p*=0.47) or education (*p*=0.59) as shown in table-I and II. The group which admitted to having good or average social support was less likely to suffer from depression than the ones with poor social support (*p*<0.001) as shown in table-I. Reliability of the questionnaire was calculated using Cronbach's Alpha and was found to be 0.87.

Table-I: Comparison of mean depression scores among various socio-demographic groups.

Socio-demographic factor	Total depression score (Mean ± SD)		*p*-value
Gender	Male	13.13 ± 5.67	0.002*
	Female	17.56 ± 6.67	
Marital status	Married	14.51 ± 6.331	0.89
	Unmarried	14.17 ± 6.555	
Status within family	Head of family	13.98 ± 6.135	0.47
	Dependent	14.96 ± 6.494	
Social support	Good	11.44 ± 4.122	0.001*
	Average	14.06 ± 5.459	
	Poor	22.29 ± 5.520	
Education	Uneducated	13.93 ± 6.923	0.59
	Under metric	13.14 ± 5.586	
	Metric and above	14.95 ± 6.356	

**p*-value significant (<0.05)

Table-II: Correlation of total depression score with age and duration of dialysis.

Bivariate correlation	*r*-value	*p*-value
Total depression and age	-0.034	0.75
Total depression and duration of dialysis	-0.19	0.07

DISCUSSION

The challenges that are faced by patients once hemodialysis is initiated are multifactorial and may adversely affect their psychological state as well as quality of life[11]. Our study shows a high prevalence of depression (76.1%) in hemodialysis patients which is comparable to recent studies done in developing countries. A Pakistani study by Bhatti, Ali and Satti using the HDRS showed that depression was present in 83.8% of the hemodialysis group while Sanathan et al found that 65% of hemodialysis patients had depressive symptoms[5,12]. This is, however, higher than the frequency in developed world which ranges from 14% to 42%[13]. A variety of reasons may explain this difference. In the developing world, the emphasis is usually on patient survival rather than quality of life and care may be suboptimal due to limited resources[14] thus a lower national socioeconomic level may lead to increased prevalence of depression. It could also be speculated that the poor prognosis and outcomes related to end stage renal disease in the resource limited countries may increase the stress

faced by the patient. The variation in the prevalence of depression may also be a result of the different screening tools, criteria and methodology used to diagnose depression.

Our results show that age has no correlation with depression echoing the findings of a study carried out in an African American population with chronic kidney disease[15]. However, studies have shown that older individuals have higher depression rates. Stasiak et al found that age

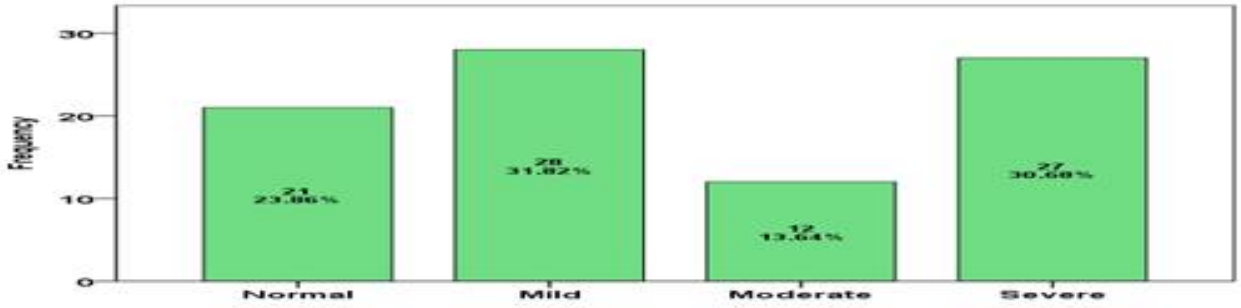

Figure-1: Frequency of patients with different grades of depression.

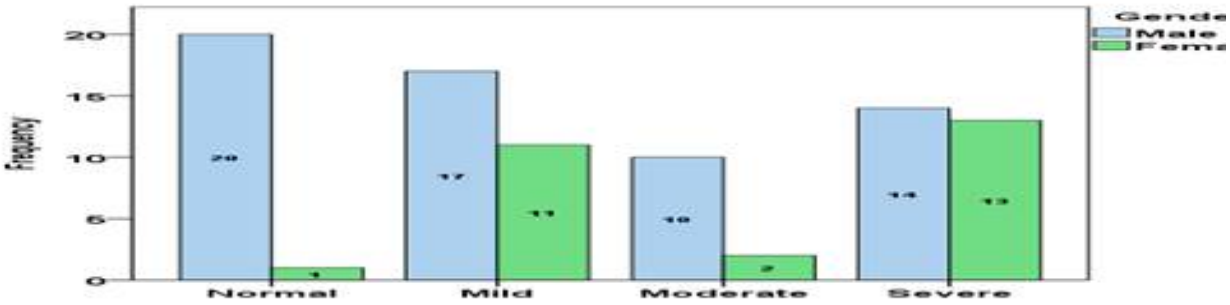

Figure-2: Frequency of male and female patients with different grades of depression.

that found in general population. The cause for this disparity is still being studied and may result from biological differences, social and economic factors[19]. Females may be more vulnerable to various stressors due to lack of independence and face more uncertainties regarding their future.

Some studies have found that being married increased the risk of depression in hemodialysis patients[20,21]. In contrast, an Indian study found that depressive symptoms were more in those who were single while other studies have found no relationship with marital status[22]. Our results do not show any correlation of depression with marital status. It may be hypothesized that not all family structures across different cultures rely on spouses to be the sole source of support.

appears to influence the prevalence of depression as well as anxiety[16] which is in contrast to our study. This might be due to the fact that our patients were younger (mean age 48.43 years).

A study conducted in two hemodialysis centres in Baghdad, Iraq revealed a statistically significant association of female gender with depression[17]. Armaly et al also reported that prevalence of depression was higher in females than in males[18]. Our finding that female patients on hemodialysis were more likely to be depressed than male patients is in agreement with these studies. The higher prevalence of depression in female patients may be parallel to

A descriptive study, carried out by Turkish researchers to study relation of depression with perceived social support in hemodialysis patients, showed that perceived social support was negatively correlated with depression. Patients who were more satisfied with relationships were less likely to be depressed[23] Many studies have demonstrated a similar

positive effect of social support on depression. The results of our study also corroborate these findings and show that patients with good or average social support were less likely to suffer from depression. The physical needs of the hemodialysis patients may be catered by the medical team, however the psychological issues may not be addressed due to lack of resources in developing countries. A patient who has strong and supportive relationships with his family and friends will be less vulnerable to stressors. This observation presents a unique opportunity for intervention by the team caring for these patients. It would be prudent for physicians to recognize and stress upon the importance of family support. Moreover, upon identifying those with less than optimal social support, alternative options (e.g. group therapy) may be explored, to improve patient outcomes. It has also been observed that managing symptoms of depression improves quality of life particularly when social support is promoted in patients on hemodialysis[24].

A study carried out in Brazil reported that depressive symptoms were more common in hemodialysis patients with low education[25] and similar findings were reported by Pakistani researchers[21]. In our study, however, level of education did not seem to be significantly related to depression. This may be due to differences in the characteristics of the study population or the mitigating effect of other socio-demographic factors. This aspect needs to be studied in more detail.

Though it may be hypothesized that heads of family undergoing hemodialysis would be more likely to suffer from depression due to ensuing financial struggle or self-reproach on failing to provide, however our study did not show any significant association with status within the famly.

Duration of dialysis has been shown to be correlated with depression as well as quality of life in some studies while others do not show this relationship[22]. Our results are consistent with the latter finding. However, this association may be more evident if the patients are screened at the start of dialysis and followed up over time.

Our study was limited by the small sample size and cross sectional design. Therefore, only association of variables could be determined and causality could not be established. Some important parameters like family history, financial support for dialysis, drug and alcohol dependence, biochemical markers, functional status were not studied. The strengths of the study include use of a well validated tool, HDRS and collection of data by a single observer to reduce bias. Also, association of depression with status within the family and perceived social support was studied. To the best of our knowledge, this is the first study which has attempted to study these factors in Pakistan. Larger studies are needed to further examine these linkages.

CONCLUSION

A reasonably high percentage of patients undergoing hemodialysis is likely to suffer from depression and by providing social support their depression can be reduced. Female patients are more likely to have depression and may need optimized social support for alleviation of their depression.

Active screening for this disorder should be part of multi-disciplinary care offered to hemodialysis patients. Physician administered, short and validated questionnaires may be used to identify the disorder. Early recognition and treatment of depression should be the aim to improve clinical outcomes and quality of life in this population.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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