Depression in Patients on Hemodialysis in Bagalkot

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Abstract

Background: Depression is more frequent in patients on maintenance hemodialysis (MHD) than the general population, and is associated with reduced quality of life and increased mortality risk. Depression is recognized as the most common psychiatric abnormality, and is second only to hypertension in frequency as a co-morbid diagnosis in end stage renal disease patients (ESRD). But its prevalence has varied widely in different studies, in different populations, using different assessment tools. Becks depression inventory (BDI) has well established cutoffs associated with a psychiatric diagnosis of a depressive disorder in dialysis patients and can be used to quantify depressive affect and establish the presence of a psychiatric diagnosis in end stage renal disease patients.

Aim : The purpose of this study was to assess the prevalence of depression on dialysis patients as well as depression in their primary caregiver and to correlate these with the demographic profile.

Materials and methods : A cross-sectional study was conducted among 55 patients on maintenance dialysis for more than 3 months using BDI scale.

Results : There was high prevalence of depression in patients on hemodialysis (72.7%) and in their care givers (46%).

Conclusion : The study reveals that there is an urgent need of psychiatric counselling and treatment of depression in all ESRD patients to improve the quality of living in them as well as care givers.

Keywords : BDI, depression, end-stage renal disease, maintenance hemodialysis

Introduction

Hemodialysis is a life sustaining treatment for patients with ESRD. It has revolutionized the treatment of ESRD and allowed patients with this disease throughout the world to survive longer. There has been a progressive increase in both the incidence and prevalence of patients with ESRD throughout the world [1]. Patients on HD are thought to be highly susceptible to emotional problems because of the chronic stress-related to disease burden, dietary restrictions, functional and economical limitations, associated chronic illnesses, adverse effects of medications, changes in self-perception and fear of death [2,3,4,5].

Depression is generally accepted to be the commonest psychological problem encountered in patients with ESRD [1]. It consists of a constellation of symptoms including anhedonia, feelings of sadness, helplessness, hopelessness, guilt and is accompanied by changes in sleep, appetite and libido, leading to impaired quality of life in patients with ESRD.

Materials and Methods

We conducted a cross-sectional study to find out the prevalence of depression in patients on maintenance HD for more than 3 months and correlate it with their demographic profile including economical status. In addition, we studied the prevalence of depression in primary caregivers of the patients. Our study includes 55 out patients on maintenance HD from a dialysis in our center, state-run hospital and a private hospital in Bagalkot, which caters to patients belonging to differing social and economic strata of Northern areas of Karnataka. All the patients dialyzed during Jan 2012 to Mar 2012 who were on HD for more than 3 months, were included. The patients were explained the aim and protocol of the study and were asked for their consent to participate. Of 63 patients approached 55 agreed to participate and consent was obtained. Patients were interviewed and were asked to complete a battery of questionnaires including Beck Depression Inventory (BDI) Questionnaire. Patients received the

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questionnaires in one of the routine visits for HD. A member of the team interviewed them, explained the details and confirmed the answers with patients as to whether they scored properly about their subjective symptoms. The original version of the Beck Depression Inventory (BDI-I) was used to assess the severity of depressive symptoms [6]. BDI is a 21-item self-report rating inventory measuring characteristic attitudes and symptoms of depression, with scores reflecting the presence and the severity of depressed mood. The 21 items are intended to be answered according to a 4-point Likert scale, in which 0 represents the absence of the problem and 3 represents an extreme problem, with a total score range of 0-63. The BDI is the most popular self-reporting tool for measuring depressive symptoms. It is a well-validated index of depression with a good correlation with the diagnosis of depression, and has been widely used to evaluate mental health in ESRD patients [7,8]. Patients who had a BDI score >15 were considered to have depressive symptoms, which is a slightly higher cutoff compared with the general population so as to avoid over-diagnosis of depression [9,10].

The primary care givers were also asked for their consent to participate. They were also requested to complete the BDI. BDI cutoff score for depression in this group was taken as >10. Although the cutoff has been variable in different studies, a score of >10 in general population and >15 in patients with ESRD has been suggested as a cutoff for depression [11]. For data management and statistical analysis, we used OPEN EPI software version. Variables were compared by an independent chi square test between groups.

Results were considered significant at $p < 0.05$.

Results

Demographic characteristics of the study population are shown in table 1. The study group consisted of 55 patients of which 42 (76.4%) were males and 13 (23.6%) were females. As per the protocol we included only those patients who were on dialysis for more than 3 months. Of these, patients who were on HD for more than 1 year (47.3%) formed a separate group for analysis and were compared to those on HD for less than 1 year (52.7%). Mean age was 55.82 ± 8.61 years. 21.8% of patients were between ages 40 and 55 years, and at this point of time we had 51% were over 55 years. The remaining 27.2% were under 40 years of age.

Association of depression with demographic characteristics is shown in table 2. Depression was found to be highly significant in patients who were educated (>XII class) and among those who were on dialysis for less than 1 year (p=0.01). It was more in patients who were employed even after being started on dialysis although it was not statistically significant. It was significantly more in low income group (p=0.03). Likewise, age, gender, occupation and marital status did not show any statistical significance. Of the 55 primary caregivers, 46% had a BDI score >10. The prevalence of depression in our study population was 72.7%.

Table 1. Demographic profile of patients on hemodialysis (n=55)

		Number	Percentage
Gender	Male	42	76%
	Female	13	24%
Age (yrs)	<40	15	27%
	40-55	12	21.90%
	>55	28	51%
Education	<V	20	36.40%
	VI--XII	20	36.40%
	>XII	15	27.30%
Income	<5000	18	32.80%
	5000-10000	12	21.90%
	>10000	25	45.50%
Occupation	yes	29	52.80%
	no	26	47.30%
Period of dialysis	<1 year	29	52.80%
	>1 year	26	47.30%
Marital status	married	47	85.50%
	unmarried	8	14.50%

Table 2. Association of depression with demographic characteristics

		Present (n=40)	Percentage	Absent (n=15)	Percentage	p value
Gender	Male (42)	29	69.00%	13	31.00%	0.27
	Female (13)	11	84.60%	2	15.40%	
Age (yrs)	<40 (15)	13	86.60%	2	13.30%	0.25
	40-55 (12)	7	58.30%	5	41.60%	
	>55 (28)	20	71.40%	8	28.57%	
Education	<V (20)	11	55%	9	45%	0.01
	VI—XII (20)	14	70%	6	30%	
	>XII (15)	15	100%	0	0%	
Income	<5000 (18)	16	88.80%	2	11.10%	0.03
	5000-10000 (12)	10	83.30%	2	16.60%	
	>10000(25)	14	56%	11	445	
Occupation	Yes (29)	24	82.70%	5	17.30%	0.07
	No (26)	16	61.50%	10	38.50%	
Period of dialysis	<1year (29)	25	86.20%	4	13.80%	0.01
	>1year (26)	15	57.60%	11	42.40%	
Marital status	Married (47)	33	70.20%	14	29.80%	0.31
	Unmarried (8)	7	87.50%	1	12.50%	

Discussion

Our study demonstrates the prevalence of depression in patients on maintenance HD at a tertiary rural hospital in India and whole of Bagalkot, using a cross-sectional survey design. There is existing literature with quite a few numbers of studies assessing the prevalence of depression in ESRD patients on maintenance HD from other countries. Although these studies have established that such patients have a high overall prevalence of depression, there is paucity of such data from our country.

Figure 1 shows comparison with other studies. Additionally, country to country variability has also been recently noted for prevalence of depression. The present study was therefore undertaken to evaluate the actual prevalence of depression disturbances, and factors associated among Indian HD patients. There was gender difference in the prevalence of depression in this study. Out of 13 female patients, depression was severe with BDI >30 in 11 patients.

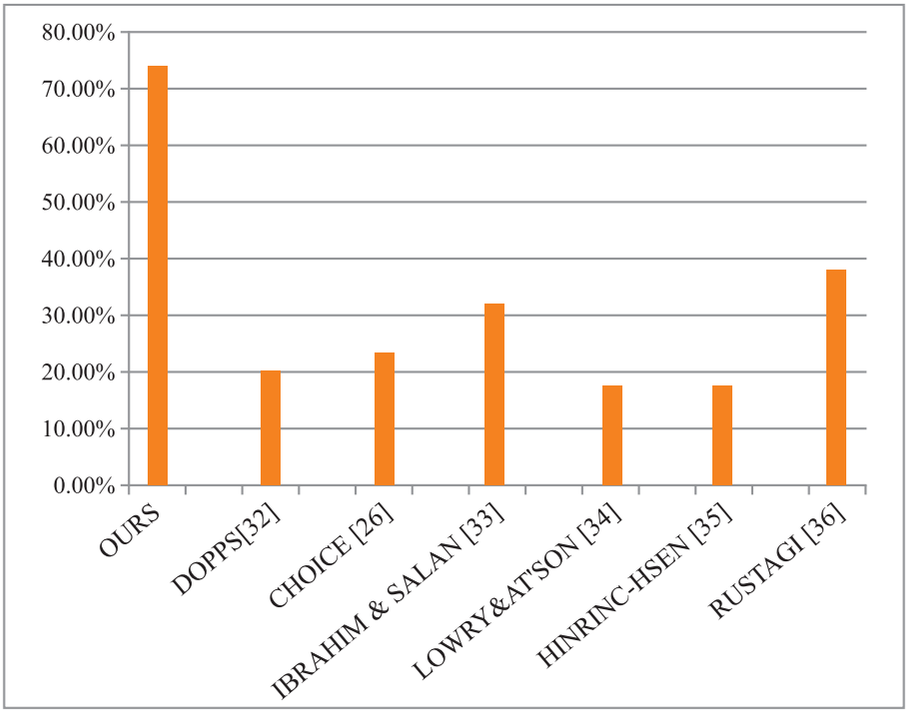

Figure 1. Comparision of depression in other studies

Depression decreased as age increased; was greater in patients aged <55 years, in lower socioeconomic group, and people with < 1year dialysis. As the duration increases patients get more accustomed and relaxed and hence depression was less in them compared to the recently diagnosed and HD initiated patients.

However, depression made no difference on patient's occupation and marital status and was more in educated >XII class, compared to lower educates. This could be explained based on mind set of our patients facing the situation. Higher the education more serious is the thinking and involvement, hence depression.

Compared to the population studied in the previous studies, there are significant differences in socioeconomic and cultural background of our population. Cultural and family values, social networking, family bonding with more involvement of caregiver, household earning system, lack of insurance or other benefits such as disability insurance are factors which could affect prevalence of depression in these patients. In addition, higher rate of illiteracy and poor socioeconomic conditions in our population could play an important role. There is also a lack of access to medical facilities, especially access to psychiatric evaluation and care. Only few studies have looked at socioeconomic factors associated with depression, and there are few studies looking at the prevalence of depression among HD patients from India.

Mahajan et al. [12] have analyzed the incidence of depression and its effects on outcome among Indian peritoneal dialysis patients. Similar to many other chronic diseases, ESRD affects the psychological state of the patients. Psychiatric illness in patients with ESRD has intrigued healthcare workers due to its effect on the morbidity and healthcare costs. Depression is recognized as the most common psychiatric abnormality, and is second only to hypertension in frequency as a co morbid diagnosis in ESRD patients [13,14]. Estimated rates of clinical depression range from 20 to 30%, with as many as 42% showing some form of depressive affect [15 -18]. These rates are substantially higher than those found in the general population, for which rates of depression are 3%-6% [19], and those found in older adults, for whom rates are 6%-10% [20].

It is noteworthy that these estimates may be erroneously low, because patients often fail to seek mental healthcare. We, often fail to recognize such symptoms, because of less attention to somatic complaints of psychiatric illnesses, and therefore, leave these co morbidities undiagnosed. In India, it might be further more difficult to assess actual prevalence of depression or other psychiatric illnesses in these

vulnerable patients, given the lack of access to mental healthcare and social stigma associated with psychiatric diagnoses.

Depression has significant effects on both individual patient well-being and delivery of medical care. HD patients with depression have lower quality of life, more functional impairments, greater occurrence of co morbid conditions and psychopathological states including suicide, lower adherence to drug treatment and an increased likelihood of long-term body pain [21-23]. These patients also have higher rates of withdrawal from MHD, hospitalization, cardiovascular disease events and mortality [24-26].

The BDI has been studied extensively, and its use has been validated to screen for depression in patients with ESRD [7],[11],[27-28]. Although the cutoff has been variable in different studies, a higher cutoff value has been proposed to diagnose depression in patients on maintenance dialysis [29]. Craven et al. [7] showed that a BDI score $\geqslant$ 15 had a 92% diagnostic sensitivity and 80% specificity in making the diagnosis of depressive disorder in patients with ESRD treated with HD or peritoneal dialysis. Even other studies using different questionnaires have used higher cutoff scores for depression in HD patients compared to general population. [15-16].

Our results reveal a high prevalence (72.7%) of depressive symptoms among HD patients, is alarmingly higher compared all other studies in India and world and could be that we had more patients aged <55 years, lower economic status, regional differences, and changing point prevalence [16-18]. The prevalence of depression in the current study was higher than that reported previously in the DOPPS (20%) and CHOICE studies (19-24%) [24-31]. Ibrahim and Salamony [32] reported a prevalence of depression to be 33.33% (BDI score $\geqslant$ 15). Patients with BDI scores $\geqslant$ 15 had significantly lower total quality of life scores and mental scores in the same study [32].

Different studies have used different criteria for diagnosing depression. Lowry and Atcherson [33] reported an 18% prevalence of major depression, using American Psychiatric Association criteria, in a group comprised mostly of white patients beginning home HD in Iowa. Hinrichsen et al. [34] found that 17.7% of prevalent center HD patients satisfied criteria for minor depressive disorder, and 6.5% met criteria for a diagnosis of major depression according to the Schedule for Affective Disorders and Schizophrenia. Our Indian study Rai. M et al. shows 47.8% in HD patients using the same BDI score [35].

Patients have a sense of being a financial burden, which is much more when they are unemployed. Also the patients who had been on dialysis for more than a year had increased prevalence of depression. This can be attributed to increased sense of dependence on dialysis for survival over a long period of time.

Our study also evaluates the much less studied and much less established prevalence of depression in primary caregivers of the patients, who are at increased risk of depression from overall disease burden was as high as 46% compared to Rai et al. [35] who reported 32%.

This can be explained as caregivers of HD patients may feel a heavy burden because they are obliged to play an important role in supporting patients on dialysis. We suggest social psychological as well as monitory support, interventions to be considered to improve the symptoms of depression in this group. Older studies have suggested impairment in the quality of life in caregiver of dialysis patients [36]. There have not been many studies specifically studying depression in this group.

There are several limitations to our study. These include a lack of a community comparison group and the reliance on self-report measures for assessing depression. Secondly, testing was performed during one of the routine HD visits; it has the beneficial effect of assessing HD patients in the same environment in which they are likely to receive most medical counseling from healthcare providers. A third important limitation was the lack of a gold standard for identifying depression. Although the BDI provides reasonable screening data, identifying patients at risk for depression, it does not diagnose depression itself, and several of these symptoms are common in the dialysis population. There is strong overlap between uremic and depressive symptoms, making it difficult to recognize and define "depression" in the ESRD population.

Therefore, while controversy exists regarding therapy of patients with ESRD with depressive symptoms, it is reasonable to believe that treatment of patients with high levels of depressive affect with the antidepressant drugs in the present armamentarium will result in improved outcomes. We need the right tools for establishing a diagnosis, evaluating risk, and implementing guidelines for initiating and continuing treatment of depression in patients with chronic renal disease. We need to know the level of depressive affect at which treatment should be initiated and the safety and efficacy of treatment of patients with varying levels of depressive affect. We need to know the right approaches

for therapeutic interventions. The time for a well designed, properly funded, randomized, controlled trial to show causality instead of associations is now. Randomized, controlled treatment trials of therapy directed at depression in patients with ESRD with high levels of depressive affect, using well validated measures such as the BDI, are desperately needed. This may be one of the last modifiable risk factors for poor outcomes we as physicians do not necessarily translate into valid practice recommendations.

Conclusion

Maintenance HD is associated with very high prevalence of depression and insomnia. Apart from this, the primary caregivers also have increased tendency to have depressive symptoms. Depression has been linked to an increased risk of mortality, hospitalization and dialysis withdrawal in different studies. Based on this result, we in our dialysis unit have instituted screening of depression in these patients every 6 months. Patients with BDI score of less than 15 were referred for psychiatric counselling. Antidepressants administered were monitored carefully and BDI score was performed half yearly and the betterment of score was looked for, hence decreasing the suffering, morbidity and mortality in them. Our results, thus, advocate incorporating a standard assessment and eventually treatment of depression, into the standard care provided to HD patients to improve psychological and overall well-being, quality of life, and consequently, reduce morbidity and mortality risk in this population. In addition, we believe that our finding of a high prevalence of depression in the caregivers of the patients is of interest to the clinician.

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