INTRODUCTION

Depression is well established as a prevalent mental health problem for people with end-stage renal disease (ESRD) and is associated with morbidity and mortality. Current estimates suggest a 20 to 30% prevalence of depression that meets diagnostic criteria. Depression is second only to hypertension in frequency as a comorbid diagnosis in patients with ESRD, yet it is understudied and seldom identified or treated adequately in hemodialysis patients. The rapidly increasing numbers of dialysis patients and their increasing medical complexity make it even less likely that depression will be detected due to the many competing demands placed on healthcare providers.

A systematic assessment of depression in hemodialysis patients would supply information about patients’ feelings of well being. Depression has several effects on the clinical outcomes of patients undergoing hemodialysis treatment. Depression among this population has been shown to have significant relationship with non-compliance, duration of dialysis treatments, and withdrawal from hemodialysis.

It is vital and essential to screen these patients for depression using suitable tools as the beginning of dialysis treatment causes subtle changes in the life of CKD patients, mainly in the physical and social spheres. For this reason, individuals diagnosed with CKD usually develop...
neuropsychiatric complications. Depression is the most important of them, due to its high prevalence, reduction in quality of life and potential to increase mortality.\textsuperscript{11,12} Therefore, it is to be considered important not only to know the rate and severity of depression in this population but, also to document its clinical presentation and the patient characteristics associated with it routinely.

Beck’s Depression Inventory (BDI) is one of the most widely used tests for assessing the severity of depression in this population and was recently modified for dialysis patients due to the high prevalence of symptoms that can mimic the clinical presentation of depression in this population.\textsuperscript{13} There are very few studies conducted in India to study depression among the patients undergoing hemodialysis. This cross sectional study was undertaken to study the prevalence and severity of depression among ESRD patients undergoing hemodialysis at our tertiary healthcare centre.

Aims and objectives of the study was to know the demographic profile of haemodialysis patients with depression and to assess the severity of depression among patients undergoing haemodialysis.

METHODS

This was a cross-sectional survey of patients with End Stage Renal Disease (ESRD) undergoing maintenance haemodialysis treatment on outpatient basis at Hassan Institute of medical sciences, Hassan, Karnataka. Ethical approval for the study was obtained from Institutional Ethics Committee. The study was conducted over a 4 month duration - May 2018 to August 2018 after obtaining permission from the Nephrology Head.

Patients aged above 18 years of age who agreed to participate in the study were recruited. Subjects were provided with explanation about the purpose of the study, and an informed written consent was obtained from them. Demographic and clinical data were documented. Patients were requested to complete Beck Depression Inventory (BDI), a self-report questionnaire to assess depression. Beck’s depression inventory that has been found to be a reliable tool and well validated measure of depression from earlier studies. This questionnaire was translated to Kannada (local language) for those who did not understand English.

It is a 21-question multiple-choice self-report inventory, one of the most widely used psychometric tests for measuring the severity of depression. The lowest possible score is 0 and the highest possible score is 63.

The score range and their respective interpretation is listed as follows -

- 1-10 - Normal
- 11-16 - Mild mood disturbance
- 17-20 - Borderline clinical depression
- 21-30 - Moderate depression
- 31-40 - Severe depression
- > 40 - Extreme depression

Inclusion criteria

- >18years of age of either sex,
- Patients undergoing haemodialysis.

Exclusion criteria

- Malignancy
- Patients undergoing haemodialysis who are diagnosed to have psychiatric illness and on treatment for the same.
- Those who are intellectually unable to answer questionnaires and illiterates
- Those who refused to participate.

Statistical analysis

Data was entered onto Microsoft Excel and was analysed using descriptive statistics.

RESULTS

A total of 123 patients were screened. 16 subjects were excluded as they were illiterates and 7 subjects refused to give consent. Rest 100 subjects were enrolled for the study. The socio-demographic data of the subjects are listed in Tables 1 and 2.

| Table 1: Literacy status among the study population. |
|Education| Subjects (%) |
|---|---|
|Primary school| 22 |
|Higher primary school| 12 |
|Secondary school| 20 |
|Intermediate| 22 |
|Degree| 24 |

| Table 2: Occupation of the study subjects. |
|Occupation| Subjects (%) |
|---|---|
|Teaching| 3 |
|Typing| 1 |
|Farmer| 15 |
|Home maker| 30 |
|Retired| 16 |
|Self employment| 29 |
|Unemployed| 3 |
|Daily wage worker| 3 |

Figure 1 depicts the distribution of various grades of depression in the total study population. About 31% of the study population showed mild depression and 10% of the population showed higher grades of depression.
The 10% of the population in this study were from the age group of 30-40 years, 24% from 40-50 years, 42% from 50-60 years, 16% from 60-70 years and 8% were in the range of 70-80 years of age. Figure 2 shows the percentage distribution of various grades of depression among various age groups of our study population.

Figure 2: Age and severity of depression.

Table 3 lists the population distribution according to the duration of hemodialysis treatment and we found that majority of the patients were initiated on dialysis fairly recently (<3 months) and only 8% of the population were on chronic dialysis treatment. Rest of the study population were on hemodialysis from < 1 year duration.

Figure 3 and 4 depicts the distribution pattern of various grades of depression and the marital status and gender of the study subjects respectively. 5% each of the subjects were found to be unmarried and widowed respectively, while 72% of the subjects were married and 18% were found to be separated from their spouse. Females were found to be more depressed than males in our study.

Figure 3: Marital status and severity of depression.

Figure 4: Gender and severity of depression.

Figure 5: Duration of dialysis and severity of depression.
Table 3: Duration of dialysis.

| Duration    | Subjects (%) |
|-------------|--------------|
| 0 - 3 months| 26           |
| 4 - 6 months| 15           |
| 7 - 9 months| 15           |
| 10 - 12 months| 15       |
| 13 - 18 months| 9        |
| 19 - 24 months| 12      |
| > 24 months | 8            |

Figure 5 shows the percentage distribution of depression based on duration of dialysis of the study population.

**DISCUSSION**

In our study, response to Beck’s depression inventory showed that depression was frequently found among CKD patients on hemodialysis. We found that majority of the subjects were mildly depressed (31%), 10% of the subjects were borderline depressed, 17% moderately depressed and 7% severely depressed. About 3% of the subjects showed extreme depression and 32% of the study population did not show depressive symptoms.

Our findings were not on par with that of other similar studies where they found 29%, 30% and 27.4% of their subjects were reported as suffering from mild, moderate and severe level of depression, respectively.14 Another study showed that 16.5% of patients had no depression, 25.6% had mild, 45.9% had moderate and 12% had severe depression.15

Factors that may increase the depression risk are lack of education, socioeconomic factors, marital status, gender, presence of other co-morbidities. Our study showed a trend of more depressive subjects among the younger age groups. In this study, the 30-40 years age group showed 2% were moderately depressed and 8% were severely depressed. Among the 40-50 years group, 10%, 7% and 7% subjects showed mild, borderline and moderate depression respectively. In the 50-60 years age group, 21% showed mild depression, 6% showed moderate depression and 1% showed severe depression. Age group above 60 showed almost no depression.

In our study, majority of the subjects were married (72%) and 3% an 4% of the subjects showed severe depression among married and unmarried subjects respectively. 15% of the married subjects were moderately depressed while, only 2% of the unmarried subjects were moderately depressed. This was in line with the findings of other studies.15,16 This may be because being married and undergoing hemodialysis adds to their expenses, alters their employment status and mental burden as children are considered as the responsibility of the parents until being married in developing countries such as ours.

This study also showed a disparity in the prevalence and severity of depression among males and females. Females showed a higher inclination towards being depressed than males. This finding was similar to other studies where they found that females were almost twice more depressed than males.17 Few other studies showed that male subjects were more prone for depression.18-22

Most of the depressed patients in our study were less educated, which was similar to the findings of other studies.15,23,24 We also found that depression was more common in the initial days of dialysis than in those who have been undergoing dialysis for longer duration.

The limitation of the present study was the relatively small size of the sample. The cross-sectional design allows us to determine associations between variables and not the causal relationships. Moreover, other important aspects such as personal or family problems were not evaluated.

**CONCLUSION**

This study alerts us with the importance of earlier diagnosis of depression. Undertaking suitable measures to treat the same may increase the quality of living of these patients. Prevalence of depression was high among younger age group, female gender, married participants and those on the initial settings of dialysis. Frequency of screening for depression should be increased in view of better health outcomes. Proper orientation of the disease and treatment aspects is to be rendered through counselling using audio-visual aids. Patients and their family diagnosed with depression should be counselled and if required the patients should be started on anti-depressants. Supportive environment should be created at home and work place.

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