



PREVALENCE OF DEPRESSION AND INSOMNIA IN PATIENTS ON DIALYSIS IN A TERTIARY CARE CENTER IN KARNATAKA – A HOSPITAL BASED STUDY.

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ABSTRACT **Background:** The patients who are on hemodialysis face chronic stress which is due to disease burden, restrictions in diet and activity, functional limitations and other chronic illnesses. The most common psychological morbidity amongst these patients is depression. A wide variety of symptoms like anhedonia, sadness, hopelessness, disturbed sleep, appetite and libido are also seen in dialysis patients. Sleep disturbances can disturb the overall physical and mental well-being that is caused due to irregularity in sleeping habits, difficulty falling asleep, early morning awakening, frequent awakening at night and sleep apnea.

Objectives: To assess the prevalence of depression and insomnia in patients who are on hemodialysis.

Methods: It is a hospital-based study, using Beck's depression scale and Berlin sleep apnea scale to assess the symptoms.

Results: In the present study we found that depression was seen in 42.7% of the participants and 18.5% of the patients had high risk of sleep apnea and 81.5% had low risk of sleep apnea, 33.3% of the participants had insomnia.

KEYWORDS : Hemodialysis, Beck's depression scale, Insomnia.

INTRODUCTION

Hemodialysis (HD) is an invaluable tool which provides life sustaining treatment for patients with End Stage Renal Disease. It has also increased the survival rate of the patient with end-stage renal disease (ESRD). Although there is increase in both the incidence and prevalence of patients with ESRD throughout the world¹. The patients who are on hemodialysis face chronic stress which is due to a disease burden, restrictions in diet and activity, functional limitations, other chronic illnesses². The most common psychological morbidity amongst these patients is Depression. A wide variety of symptoms like anhedonia, sadness, hopelessness are seen in them and they also have disturbed sleep, appetite and libido³. Sleep disturbances can disturb overall physical and mental well-being. Sleep disturbance is caused due to irregularity in sleeping habits, difficulty falling asleep, early morning awakening, frequent awakening at night, sleep apnea. In patients on dialysis therapy, usually the levels of urea and/or creatinine is elevated, they often complain of pruritus and bone pain³. Depression is one of the most common psychiatric/psychological problem. It is estimated that in a primary care clinics, the prevalence of depressive disorders is 13-22 %, however it is only recognized in about 50% of cases⁴.

Uremia in CKD may overlap with symptoms of depression, due to which many patients remain undiagnosed by the treating physician. Depression and anxiety may affect the treatment compliance and immune and nutritional status of the patient may be compromised. Decreased quality of sleep is common in dialysis patients and is associated with decreased health-related quality of life⁵.

It was noted in a study by Rai M et al⁶, it was found that that patients on Hemodialysis had lower quality of life, there was also higher occurrence of psychopathological states, which included, lower adherence to drug treatment, suicidal thoughts and an higher likelihood of body-pain⁶. Therefore, for psychological and overall well-being of the patients the diagnosis of these conditions are very important as they help in reduction of morbidity and mortality risk in this population.

MATERIALS AND METHODS

The present study is a hospital based cross sectional study, which was done for a period of 3 months, in the Dialysis unit of a tertiary care hospital in Bangalore. Patients who were aged 18 years and above, on hemodialysis for more than 3 months were considered for the study. Patients who had previous history of Depression and those patients who on any treatment for sleep disorder, seriously ill patients were excluded from the study.

Sample size was calculated by taking prevalence of depression in hemodialysis patients to be 47.8% as per the study by M Rai et al⁶. The sample size of 96 was calculated by OPEN EPI 2.3.1 software, informed consent was take from each of the participant.

BECK DEPRESSION INVENTORY (BDI) and BERLIN SLEEP APNEA (BSA)

Questionnaire scales were used to assess the depressive symptoms and sleep apnea. The BDI is a 21-item self-report rating inventory, it is scored according to a 4-point Likert scale, in which 0 represents the absence of the problem and 3 represents an extreme problem, the total score ranges from 0-63⁷.

Standardized BSA Questionnaire was used to assess symptoms of sleep apnea⁸. It is a 10-item questionnaire, divided in three categories which include: snoring, sleepiness or chronic fatigue, presence of hypertension or obesity (BMI above 30 kg/m). The participant is considered to be a high risk for obstructive sleep apnea if he/she is positive in any two of the categories. The participants were classified into high risk and low risk for sleep apnea according to their response. If at least one symptom was reported as 'frequent' by the participant then, they were considered to be suffering from insomnia.

Data was entered in MS Excel 2016 and Epi info software version 3.2.1. Variables were compared by an independent t-test or Chi square test between groups. Results were considered significant at if the p was lower than 0.05.

Table no 1 showing the sociodemographic profile of the study participants

VARIABLES		FREQUENCY	PERCENTAGE
Gender	Male	69	71.8
	Female	27	28.2
Age of the study participants in years	Below 40 years	12	12.5
	41-55 years	52	54
	Above 55 years	32	33.5
Level of education	Primary	18	18.7
	Secondary	38	39.5
	College	40	41.8
Socio economic class *	Class 1	11	11.5
	Class 2	17	17.5
	Class 3	32	33.3
	Class 4	27	28.2
	Class 5	9	9.5
Duration of hemodialysis	<1 year of dialysis	63	65.6
	>1 year of dialysis	33	34.4

* According to modified BG Prasad classification

Table no 2 Showing the prevalence of Depression, sleep apnea, Insomnia, the study participants

VARIABLES	FREQUENCY	PERCENTAGE
Depression	41	42.7

High risk sleep apnea	17	18.5
Low risk sleep apnea	78	81.5
Insomnia	32	33.3

Table no 3 Association of Depression, sleep apnea, Insomnia, the study participants with the variables

Variable	DEPRESSION			P value	SLEEP APNEA			INSOMNIA		
	N	Yes	No		High risk	Low risk	P value	Yes	No	P value
GENDER										
Male	69	32	37	0.412	28	41	0.319	34	35	0.378
Female	27	15	12		8	19		16	11	
AGE in years										
<40	12	6	6	0.927	4	8	0.340	4	8	0.101
41-55	52	23	29		8	44		29	23	
>55	32	15	17		7	24		22	10	
Duration of dialysis										
<1 year	63	21	42	0.0001	8	55	0.031	29	34	0.027
>1 year	33	23	10		9	24		22	11	

Chi square test was used for association and p value <0.05 is considered statistically significant

RESULTS

In the present study majority of the participants were males with 71.8% and 28.2% of the participants were females. 12.5% of the patients were below 40 years, where as majority of the participants i.e. 54% belonged to 41-55 years and 33.5% of the participants belonged to age group above 55 years. 18.7% of the participants were educated till primary level, 39.5% had completed secondary school, 41.8% were educated till college level. Majority of the participants i.e. 33.3 % belonged to class 3 according to modified BG Prasad classification. 28.2% belonged to class 4, 9.5% belonged to class 5, 11.5% belonged to class 1.

Majority of the patients were on hemodialysis for less than 1 year, i.e. 65.6%, and 34.4% underwent hemodialysis for more than a year. Depression was seen in 42.7% of the participants and 18.5% of the patients had high risk of sleep apnea and 81.5% had low risk of sleep apnea, 33.3% of the participants had insomnia.

The association of depression, sleep apnea and insomnia with gender of the participants was not statistically significant with p value of 0.412, 0.319, 0.378 respectively. The association of depression, sleep apnea and insomnia with age group of the participants was not statistically significant with p value of 0.927, 0.340, 0.101 respectively. The association of depression, sleep apnea and insomnia with duration of hemodialysis of the participants was statistically significant with p value of 0.0001, 0.031, 0.027 respectively. Majority of the participants with more than one year duration had depression. Whereas the majority of longer duration hemodialysis patients had low risk of sleep apnea, and longer duration of hemodialysis was associated with insomnia.

DISCUSSION

The present study is a cross-sectional study to find the prevalence of depression and sleep disorders in patients on hemodialysis at a tertiary care center in India. Many studies have been done across the world, assessing the prevalence of depression and sleep problems in patients on hemodialysis and have reported high prevalence of depression and sleep problems, however the data is limited in our country. In the present study we found that depression was seen in 42.7% of the participants and 18.5% of the patients had high risk of sleep apnea and 81.5% had low risk of sleep apnea, 33.3% of the participants had insomnia. In the study by M Rai et al from New Delhi, India had similar findings that were consistent with our study⁶.

According to Mahajan et al⁹ there was high prevalence of depression (47.8%), insomnia (60.9%), increased risk of sleep apnea (24.6%) and depression in caregiver (31.9%) in patients of hemodialysis. The psychological state of the patients is disturbed by the hemodialysis. Many studies show that Depression is one of the most common psychiatric abnormality.¹⁰

Multiple studies estimate that the clinical depression in hemodialysis patients range from 20 to 30%, with as many as 42% showing some form of depressive affect¹¹⁻¹² the rates of depression for general

population range from 3%-6%, in older adults, for whom rates are 6%-10%¹³. Therefore, the patients of hemodialysis have substantial problem of depression.

Multiple studies also indicate that the hemodialysis patients with depression have lower quality of life, impairing their daily functionality, increasing their comorbid conditions.

Other problems faced by these patients is self-harm, poor drug adherence¹². Few studies also show that these patients have higher withdrawal rates from maintenance dialysis, leading to repeated hospitalization, and higher mortality.¹⁴⁻¹⁵

The present study's findings were consistent with finding of various studies across different populations around the world, which showed higher prevalence of depression in these patients¹²⁻¹³. In a study by Ibrahim et al¹⁶, the authors reported that the prevalence of depression to be 33.33%, they also found that the lower total quality of life in patient.

In a study by Lowry et al in Iowa in united states¹⁷, 18% of patients had major depression, although they used American Psychiatric Association criteria for assessment, In the present study we didn't find any gender difference in the prevalence of depression. another study in Pakistan found similar results¹⁸ however, multiple studies evidently indicate higher prevalence of depression in female patients¹⁶.

Many studies have found that patients of dialysis patients suffer from sleep abnormalities and the prevalence is as high as 80%¹⁹, which is much more than the general population. Our study had 33.3 % prevalence of insomnia. The most frequent complaints are insomnia, sleep-disordered breathing and excessive daytime sleepiness.²⁰ In a study by Mucs et al²¹ 49% of patients were insomniac. Williams et al.²² reported that sleep problems ranged from 40 to 61%. Kraus et al²³ found that 60% of the study participants complained of sleep problems. Few studies reported that about 50% of their patients complained of sleep disturbances²². our study participants had lower prevalence of insomnia when compared to other studies.

In the present study, 18.5 % patients had high risk for sleep apnea. It was lesser than the study in India by Dr Rai et al⁶. Mucs et al. reported that 32% patients were high risk for sleep apnea²¹ found that males to be at high risk for sleep apnea.

CONCLUSION

In our study we found that patients on Hemodialysis have higher prevalence of depression and insomnia. The patients were also at high risk for sleep apnea syndrome. The patients on regular hemodialysis should be screened for depression and sleep disorders thereby improving their mental health and well-being which will eventually help in reducing the morbidity and mortality risk in this population.

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