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Depression, Hopelessness and Risk of Suicide in patients Undergoing Hemodialysis: A Cross Sectional Study

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Abstract

Background: Hemodialysis (HD) is associated with organic difficulties and also causes changes in psychological status of patients. Depression is the most common and probably the most important psychopathological complication in in hemodialysis patients. Hopelessness was reported as the aggravating factor of depression. Suicide is established as prevalent mental health problems in patients undergoing hemodialysis.

Aim: To assess depression, hopelessness and risk of suicide in patients undergoing hemodialysis.

Methods: A cross-sectional study was carried out among 50 hemodialysis patients at tertiary care hospital in India. Scales like Patients health questionnaire-9(PHQ-9), Beck's hopelessness scale (BHS) and Columbia-suicide severity rating scale(C-SSRS) were used to assess depression, hopelessness and risk of suicide.

Result: Out of 50 patients, 38(76%) showed depression, 40(80%) showed hopelessness and 4(8%) showed risk of suicide. There is a significant correlation between sessions of hemodialysis with depression (p value=$<0.05^{**}$) and hopelessness (p value=$<0.05^{**}$). There is significant correlation between Depression and hopelessness in hemodialysis patients. (p value=$<0.05^{**}$)**.**

Conclusion: The results from this study suggest that patients who have less sessions of dialysis showed more depression and hopelessness than the patients having more sessions of dialysis. This is may be due to adaptation with hemodialysis procedure in patient's lifestyle as the number of sessions increases. And in this study depression is strongly associated with hopelessness and well explained by hopelessness

Keyword: Depression, Hopelessness, Risk of Suicide, Undergoing Hemodialysis, Cross Sectional Study

Introduction

Hemodialysis (HD) is associated with organic difficulties and also causes changes in psychological status of patients. Patients have to undergone hemodialysis two to three times a week and it is a continuous stressful situation. Due to this they face many personal, social and professional problems

such as necessity to change the lifestyle habits, loss of job and social position, dependence of HD procedure, reduced financial status.[1] Depression is the most common and probably the most important psychopathological complication in End Stage Renal Disease (ESRD) in patients undergoing hemodialysis.[2] Depression can also progress to suicide.[1] The ESRD is incurable and if the cessation of hemodialysis occurs the outcome is fatal which can put the patients under a very stressful condition.[2] Such stress contributes greatly to the induction of various psychological disorders among HD patients, especially depression.[3]

Hopelessness was reported as the aggravating factor of depression.[4] Certain cognitive aspects of the patient, including negative expectancies regarding future and suicidal ideations are closely associated with hopelessness.[5] ESRD patients undergoing HD, repeatedly experience certain negative events associated with their chronic illness. Such experiences increase negative expectancies and feelings of hopelessness. By assessing the feelings of hopelessness that HD patients may experience, we can intervene depression therapeutically.[1] Hopelessness has also been described as a state where hope is completely lost and person is not able to enjoy life or to make plans about the future. Hopelessness is also associated with diminished physical, psychological and mental health.[6]

Suicide is established as prevalent mental health problems in patients undergoing hemodialysis. There is a high incidence of suicide threats and attempts among HD patients. The gravest result of depression is suicide. Suicidal ideation and attempt are associated with depression and hopelessness in HD patients.[7]

In our study, we aim to assess depression, hopelessness and risk of suicide among patients undergoing hemodialysis.

Methodology

This cross-sectional study was performed at a tertiary care hospital and affiliated medical college in western India. The study was approved by Institutional Ethical Committee.

The study population consists of 18 years or more than 18 years old patients including male and female who receive hemodialysis. Written informed consent was taken from the patients.

The sample size was set at 50. Socio-demographic details were recorded. Anonymity and confidentiality were maintained. No incentives were offered to take part in the study.

To assess different variables, three different scales/ questionnaires were used, which are described in brief below:

1.) PHQ-9 questionnaire: - The **PHQ-9** is a 9-question instrument given to patients to screen for the presence and severity of depression. It is the 9- question depression scale from the Patient Health Questionnaire (PHQ). The results of the PHQ-9 may be used to make a depression diagnosis.
2.) Beck's hopelessness scale (BHS): The **Beck Hopelessness Scale** (**BHS**) is a 20-item self-report inventory developed by Dr. Aaron T. Beck that was designed to measure three major aspects of hopelessness: feelings about the future, loss of motivation, and expectations.
3.) Columbia-suicide severity rating scale(C-SSRS): The **Columbia-Suicide Severity Rating Scale**(C-SSRS), is a suicidal ideation and behavior rating scale created by researchers at Columbia University, University of Pennsylvania, University of Pittsburgh and New York University to evaluate suicide risk. It rates an individual's degree of suicidal ideation on a scale, ranging from "wish to be dead" to "active suicidal ideation with specific plan and intent and behaviors."

The statistical analysis and association between two variables Yates' chi- square test was applied.

Results

Among 50 patients who had undergone hemodialysis, 66%(n=33) were males and 34%(n=17) were females. Most of the patients were married (88%, n=44). Average age of the patient was 48.14 year. Most of the patients were unemployed (60%, n=30), and most of the females were housewife (28%, n=14). Out of all patients 62%(n=31) had <400 sessions of dialysis and 38%(n=19) had >400 sessions of dialysis.

Characteristics of study patients:	
VARIABLES	**N**
Mean age in years	48.14+_11.11
Gender	
Male	33(66%)
Female	17(34%)
Employment status	
Employed	6(12%)
Unemployed	30(60%)
Housewife	14(28%)
Marital status	
Married	44(88%)
Unmarried	3(6%)
Divorced	2(4%)
Separated	1(2%)
Sessions of dialysis	
<=400	31(62%)
>400	19(38%)

Among all patients, 76%(n=38) having depression in various degree on PHQ-9 questionnaire (cut off score >4). It was about 34%(n=17) having mild depression, 24%(n=12) having moderate depression, 10%(n=5) having moderate to severe depression and 8%(n=4) having severe depression. And 80%(n=40) showed hopelessness of various degree on beck's hopelessness scale (cut off score >3). It was about mild hopelessness of 38%(n=19), moderate hopelessness of 26%(n=13) and severe hopelessness of 16%(n=8).

Out of 50 patients, 4(8%) having suicidal ideations on Columbia- suicide severity rating scale(C-SSRS) with various severity ranging from 1 to 4. And on intensity of ideations subscale (cut off >5) 2(4%) patients having moderate intensity of ideations, 1(2%) having moderate to severe intensity of ideations and 1(2%) having severe intensity of ideations. None of the patients showed positive finding on suicidal behavior subscale and behavior lethality subscale of C-SSRS.

Correlation between sessions of dialysis with depression has shown below:

Sessions of dialysis	Depression	Yates' chi square	P value
<=400 (N=31)	27	4.0228	0.04489**
>400 (N=19)	11		
	N=38		

P value <0.05 ** The association between the two variables would be considered statistically significant

Correlation between sessions of dialysis with hopelessness has shown below:

Sessions of dialysis	Hopelessness	Yates chi square	P value
<=400 (N=31)	29	7.2634	0.007038**
>400 (N=19)	11		
	N=40		

P value <0.05 ** The association between the two variables would be considered statistically significant.

Correlation between sessions of dialysis with risk of suicide has shown below:

Sessions of dialysis	Suicidal ideations Present	Yates chi square	P value
<=400 (N=31)	3	0.0005	0.982863**
>400 (N=19)	1		
	N=4		

P value >0.05 ** The association between the two variables would be considered statistically not significant

To measure the linear association between two variables depression and hopelessness Yates' chi square test was applied. The test concluded statistically significant association between depression and hopelessness. Table below describes the results of the test.

	Patients with depression (PHQ-9 score >4) (N=38)	Patients without depression (PHQ-9 <=4) (N=12)	Yates' chi square test	P value
Hopelessness present(N=40)	34	6	6.5858	0.01028**
Hopelessness not present(N=10)	4	6		

P value <0.05 ** The association between the two variables would be considered statistically significant.

Discussion

In this study we assessed depression, hopelessness and risk of suicide in hemodialysis patients. Depression is the most common psychological problem in patients with End Stage Renal Disease (ESRD). As ESRD progresses, the daily routine life of the patients is affected. And hemodialysis can partially correct these symptoms, so leading to additional changes in the patient's lifestyle.[2]

Several studies have estimated that depression occurs in 20% to 49% of hemodialysis patients. But in our study more than half of our patients (76%, n=38) showed depression in various degrees; predominantly mild variety of depression followed by moderate, moderate to severe and severe in decreasing order.

A sense of hopelessness is associated with hemodialysis, affecting their physical, mental and spiritual health, and can be life- threatening as well.[8] We found significant impact of hopelessness on hemodialysis. 80% of our patients showed positive results, most commonly mild variety of hopelessness followed by moderate and severe. This is sufficient reason to improve the care for these patients, medically as well as psychologically.

As suicide is an adverse consequence of patients undergoing hemodialysis, we tried to assess risk of suicide by analyzing suicidal ideations and intensity of suicidal ideations in our study. Depression and hopelessness have been identified as an independent risk factor for subsequent onset of suicidal ideation and attempts. We found 8%(n=4) of all hemodialysis patients having suicidal ideations with varying severity. We also found moderate to severe intensity of suicidal ideations.

In our study, there is a significant correlation between sessions of hemodialysis with depression (p value=0.04489**) and hopelessness

(p value=0.007038**), which suggest that patients having less than 400 sessions of hemodialysis having more depression and hopelessness than patients having more than 400 sessions of hemodialysis. But we didn't find any significant correlation between sessions of hemodialysis and risk of suicide. So, there is no association between sessions of hemodialysis and risk of suicide found in our study.

Also, we found depression and hopelessness are significantly correlated in hemodialysis patients (p value=0.01028**), which suggest that depression is strongly associated with hopelessness and well explained by hopelessness.

In our study, sample size is less and most of the patients having chronic renal failure and a greater number of dialysis sessions so further future studies are required for patients having newly diagnosed renal failure and started hemodialysis treatment.

This study is a cross-sectional study so further prospective study of assessing depression and risk of suicide may be needed in the future.

Conclusion

The results from this study suggest that patients who have less sessions of hemodialysis showed more depression and hopelessness than the patients having more sessions of hemodialysis. This is may be due to adaptation with hemodialysis procedure in patient's lifestyle as the number of sessions increases. And in this study depression is strongly associated with hopelessness and well explained by hopelessness.

Source of support

Nil.

Conflict of interest

There are no conflicts of interest.

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Nil

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