Original Research Article

Factors associated with depression among patients with chronic kidney disease on regular hemodialysis in Wangaya regional hospital Denpasar

A. A. Gede Oka Suta Wicaksana*, Desak Putu Gayatri Saraswati Seputra, I. Wayan Sunaka

Department of Internal Medicine, Wangaya Regional Hospital, Denpasar, Bali, Indonesia

*Correspondence:
A. A. Gede Oka Suta Wicaksana,
E-mail: okasutaw22@gmail.com

ABSTRACT

Background: Chronic kidney disease (CKD) still poses a significant health challenges in both developed and developing countries. Patients with CKD, especially those who require regular hemodialysis tend to experience alteration in psychological status. Depression is one of the most common psychiatric disorders found in patients with end-stage CKD undergoing regular hemodialysis.

Methods: This study was a cross-sectional analytic study aimed to identify factors associated with depression among patients with CKD on regular hemodialysis in Wangaya regional hospital. Study sample was all CKD patients who were on regular hemodialysis on February to March 2021. This study was done by questionnaire fulfilment with verbal interview. Additional data were also obtained from medical records. Beck depression index (BDI) questionnaire was used to evaluate depression.

Results: Sixty four samples were included in this study. Majority of the sample were male (75%), aged >50 years (71.9%), with low educational status (75%), were married (85.9%), unemployed (67.2%), had duration of hemodialysis of <2 years (64.1%) and had single co-morbidity (62.5%). Depression was found in 29.7% patients. Unemployment (p=0.05), duration of hemodialysis of >2 years (p<0.001) and multiple co-morbidities (p=0.02) were significantly associated with depression.

Conclusions: It is important to routinely screen hemodialysis patient for depression. Several individual determinants including sociodemographic factors, duration of hemodialysis and co-morbidities should be considered as they may correlate to the incidence of depression.

Keywords: Chronic kidney disease, Hemodialysis, Depression

INTRODUCTION

CKD is defined as an abnormality of kidney structure or function persisting for more than 3 months.[1] CKD still poses a significant health challenges in both developed and developing countries. This condition occurs in 9.1% of the global population.[2] The prevalence of CKD in Indonesia varies from 2% to 8% depending on the age group, with the highest prevalence found in the 65-74 years population (8%).[3,4] End-stage CKD will require permanent renal replacement therapy, either in the form of regular hemodialysis or kidney transplant.[1]

Patients with CKD, especially those who require regular hemodialysis tend to experience alteration in psychological status. Despite advances in renal replacement therapy and increased survival rates, people with CKD still face a variety of physical, psychological

and social problems as a result of the disease and complexity of treatment.[5] Patients undergoing hemodialysis tend to experience extensive somatic symptoms and limitation in social, occupational and recreational activities. Combination of physical symptoms and emotional distress contributes to psychological disorders in patients with kidney failure undergoing regular hemodialysis.[6]

Depression is one of the most common psychiatric disorders found in patients with end-stage CKD undergoing regular hemodialysis. Literature stated that depression was found in 30-70% of CKD patients undergoing hemodialysis.[5,7,10] Depression may cause adverse clinical outcomes in hemodialysis patients by affecting adherence to dialysis and medications, changes in immune system function and its detrimental effect on nutritional status. Studies have found an increased risk of death in hemodialysis patients who are depressed.[7,10] Depression in patients undergoing hemodialysis is associated with an increased risk of hospitalization and increased length of hospital stay.[10] Depression is also associated with unhealthy behavior such as alcohol and tobacco use, poor eating habits and sedentary lifestyles. These factors create an increased risk of adverse clinical events which in turn increases the need for health services, resulting in higher health care costs.[5]

Various studies on depression in hemodialysis patients have been conducted. However, this condition still lacks clinical recognition. One of the challenges in recognizing depression in hemodialysis patients is the difficulty in differentiating between somatic symptoms of depression, uremia symptoms, and side effects of therapy.[6] Several methods may be used as screening tool for depression. In this study, researchers used the BDI questionnaire. The BDI questionnaire is an easy, inexpensive and fairly accurate method for screening of depression. This questionnaire has been validated in Bahasa, Indonesian's native language and has been commonly used in previous studies.

METHODS

This study was an analytic study with cross-sectional design aimed to identify factors associated with depression among patients with CKD on regular hemodialysis in Wangaya regional hospital. All CKD patients who underwent regular hemodialysis in February to March 2021 were included in the study. Patients who were diagnosed with depression prior to regular hemodialysis, patients with severe hearing impairment who did not possible to be interviewed and patients with incomplete medical record data were excluded.

This study was done by questionnaire fulfilment with verbal interview. Sociodemographic data including age, gender, educational status and occupational status were collected. Depression was evaluated by BDI questionnaire. BDI score of >17 was used as the cut-off for depression. Additional data including duration of hemodialysis and co-morbidities were also obtained secondary from medical record. Age was further categorized into <50 years and >50 years. Educational status was categorized into low (illiterate, primary school, middle school and high school-graduated) and high (diploma, bachelor or higher). Hemodialysis duration was categorized into <2 years and >2 years. Co-morbidities were categorized as multiple if more than one systemic medical illness such as hypertension and diabetes mellitus were present in the subject and single if only one co-morbid was found.

Statistical analyses were done using statistical package for the social sciences (SPSS) for Windows version 21. Univariate and bivariate analyses were done. Descriptive statistics were stated in frequency and percentage. Bivariate analysis was done to identify factors associated with depression status. Chi-square test was used to identify association of age, gender, educational status, marital status, occupational status, duration of hemodialysis and co-morbidities with depression. P<0.05 was considered as statistically significant.

This study had been approved by the health research ethics commission of Wangaya regional hospital under reference number of 010/III.4/KEP/RSW/2021.

RESULTS

Sixty four samples were included in this study. Majority of the sample were male (75%) and aged >50 years (71.9%). Most of the subjects had low educational status (75%), were married (85.9%) and unemployed (67.2%). A total of 64.1% samples had duration of hemodialysis of <2 years. Among the study sample, patients with single co-morbidity were found to be higher in proportion (62.5%) (Table 1).

Table 1: Characteristic of study population (N=64).

Characteristics	Frequency	Percentage
Gender		
Male	48	75
Female	16	25
Age (in years)		
>50	46	71.9

Characteristics	Frequency	Percentage
<50	18	28.1
Educational status		
Low	48	75
High	16	25
Marital status		
Unmarried	9	14.1
Married	55	85.9
Occupational status		
Unemployed	43	67.2
Employed	21	32.8
Duration of hemodialysis (in years)		
>2	23	35.9
<2	41	64.1
Co-morbidities		
Multiple	24	37.5
Single	40	62.5

Table 2: Association of sociodemographic factors, hemodialysis duration and co-morbidities with depression among study samples.

Characteristics	Depression status		OR (95% CI)	P value
	Depression N (%)	Normal N (%)		
Gender				
Male	13 (27.1)	35 (72.9)	0.72 (0.33-1.58)	0.43
Female	6 (37.5)	10 (62.5)		
Age (in years)				
≥50	14 (30.4)	32 (69.6)	1.09 (0.46-2.59)	0.83
<50	5 (27.8)	13 (72.2)		
Educational status				
Low	16 (33.3)	32 (69.6)	1.77 (0.59-5.31)	0.26
High	3 (18.8)	13 (72.2)		
Marital status				
Unmarried	4 (44.4)	5 (55.6)	1.63 (0.69-3.80)	0.29
Married	15 (27.3)	40 (72.7)		
Occupational status				
Unemployed	16 (37.2)	27 (62.8)	2.60 (0.85-7.96)	0.05*
Employed	3 (14.3)	18 (85.7)		
Duration of hemodialysis (in years)				
≥2	17 (41.5)	24 (58.5)	4.76 (1.20-18.8)	<0.001*
<2	2 (8.7)	21 (91.3)		
Co-morbidities				
Multiple	11 (45.8)	13 (54.2)	2.2 (1.07-4.88)	0.02*
Single	8 (20.0)	32 (80)		

*Indicates statistically significant value.

Depression according to BDI score was found in 29.7% patients. Unemployment (p=0.05), duration of hemodialysis of >2 years (p<0.001) and multiple co-morbidities (p=0.02) were significantly associated with depression. Association of gender, age, educational status, and marital status with depression were not found to be statistically significant (Table 2).

DISCUSSION

CKD is considered one of the most disabling diseases in the world. Psychiatric disorders usually co-exist with most chronic illnesses and especially with CKD.[9] Our study revealed that depression, regardless of its severity, was present among 29.7% of the patients who were on regular hemodialysis. This estimate was lower than that reported

by Saeed et al on patients with CKD undergoing hemodialysis using BDI-II scoring which found that the prevalence of depression was 75%.[10] Divyashree et al also reported that the prevalence of depression among hemodialysis patients was 68%.[11] This difference in the prevalence of depression could be attributed to differences in sample characteristics.

This study found that occupational status, duration of hemodialysis and co-morbidities were significantly associated with depression. Patients who were unemployed (p=0.05), with duration of hemodialysis of >2 years (p<0.001) and with multiple co-morbidities (p=0.02) were associated with a significantly higher depression.

Our finding showed that being unemployed was highly correlated with increased depression prevalence rate. This finding was consistent with previous study, which revealed that depression was significantly higher in patients who were unemployed (p<0.001).[12] Other study had shown that patients with low educational level and those who were unemployed were at higher risk for developing depression, presumably due to low socioeconomic status.[9]

With regard to the duration of the dialysis, we found that hemodialysis duration of more than 2 years was significantly associated with depression. This result showed similarity to other study which found that longer duration of dialysis were associated with higher depression scores (OR 5.75 (95% CI 1.79-18.44), p=0.032).[13] However, this study finding was inconsistent with study of Elkheir et al who found that newly patients undergoing hemodialysis were more depressed than those on longer-term dialysis.[14]

Based on the present of co-morbidities, we found that patient with multiple co-morbidities showed significant association with depression. Previous literature found that hypertension and diabetes mellitus were the most common co-morbidities associated with depression among hemodialysis patients, but it was not significant based on statistic value.[14] Some others factor that may increase the risk of depression were age, gender, educational status and marital status, but were not found to be significantly associated with depression in this study.

Nevertheless, a concerning finding of high depression prevalence among patients with CKD on regular hemodialysis suggested the needs to do a routine screening for this disorder and should be best performed in conjunction with provision of appropriate interventions. We strongly recommended further research exploring the relation of depression and CKD in order to fully understand how depression affected patients with CKD especially those who required regular hemodialysis and what were the best choice of interventions.

The limitation of this study was the relatively small sample size. A study covering more areas with larger sample size may have provided a more accurate estimation of prevalence and risk factors. The design of cross-sectional study only allowed us to determine association of depression with other variables; however the causal relation between variables cannot be determined. Moreover, BDI questionnaire was solely a tool used for screening of depression and not to make a definite diagnosis of depression. Other important aspects that may have affected depression may also not be fully able to be evaluated.

CONCLUSION

Depression was highly prevalent among patients on hemodialysis in Wangaya regional hospital, Denpasar, Bali, Indonesia. Current unemployment, longer duration of hemodialysis and multiple co-morbidities were associated with higher depression. Our findings draw attention to the importance of screening hemodialyzed patients for depression to facilitate early intervention.

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