FACTORS AFFECTING DEPRESSION IN HEMODIALYSIS PATIENTS

Yuanita Panma

Akademi Keperawatan Pasar Rebo, Medical Surgical Nursing Department

Email: yuanitapanma@akperpasarrebo.ac.id

Jl. Tanah Merdeka no.16-18, Pasar Rebo, East Jakarta, Indonesia

ABSTRACT

Background: Depression is a common psychological problem faced by hemodialysis patient. Patient with depression had lower obedience level in dialysis and also lower quality of life. This study aim to identification factor affecting depression in hemodialysis patient. **Methods:** A cross sectional design was used with a total of 119 respondents. The bivariate data is analyzed with chi-square, one way anova and kruskal wallis test. The Beck Depression Inventory (BDI) questionnaire, The Functional Assesment of Chronic Illness Therapy Spiritual (FACIT Sp12) and The Medical Outcomes Study Social Support Survey (MOS-SSS) questionnaire to measure depression, spiritual and social support. **Results:** There is no significant relationship between age, gender, education, occupation, frequency of hemodialysis, time undergo hemodialysis, and social support with depression. But there is a significant relationship between spiritual level (p-value 0.001) with depression. **Conclusions:** Based on the findings, healthcare team can support spiritual level patient in the hospital, to reduce depression in hemodialysis patient

Keywords: depression, hemodialysis, spiritual

Introduction

Chronic Renal Failure (CRF) has globally become a serious problem where the disease is able to affect the rates of morbidity and mortality. In 2014, the rate of CRF patients reached 111.2 per 1000 patients annually, with a doubled number of mortality compared to other patient types (United States Renal Data System, 2016). In Indonesia, the number of death of chronic kidney disease patients in 2014 was 2.221 with the cardiovascular-related cause of death at 59% (Indonesian Renal Registry, 2014).

Hemodialysis is one of treatment for CRF besides peritoneal dialysis, and renal ransplantation. In addition to the therapeutic effect, hemodialysis can also have long-term effects that can reduce the quality of life of patients in the form of physical, psychosocial and spiritual impacts. One of the psychosocial effects faced by clients is depression (Iyasere & Brown, 2014). Depression is a psychological problem that is often experienced by patients with end-stage renal failure. Depression is also called unipolar disorder, which is characterized by a decrease in mood (loss of passion for activity, depressed, unable to express feelings of joy) (Sarlito, 2014). Dialysis therapy carried out in patients with chronic renal failure causes several changes including loss of bodily functions, changes in role in the family, work, physical strength, sexual function and thinking ability. This reinforces the concept

of loss associated with depression. Besides physiological changes, weaknesses that occur, stress due to chronic renal failure, and the need to undergo dialysis therapy for life puts the patient at high risk for depression.

The prevalence of depression in advanced stage CRF patients who undergo dialysis (39.3%) is higher than the prevalence of depression in stage 1-5 patients who do not undergo dialysis therapy (26.5%) and in patients undergoing kidney transplantation (26.6%) %) (Palmer et al., 2013). The risk factors for depression in general according to Amir (2005) are gender, age, marital status, geographical, family history, personality, social stressors, social support, and not working. Meanwhile, according to Arici (2014) risk factors for depression are: young age, female sex, white race, unemployment, low income, low education level, non-compliance with dietary restrictions, non-compliance with Intra Dialytic Weight Gain (IDWG), diabetes mellitus, stroke, hypoalbumin, cardiovascular disease, and other psychiatric disorders, estranged pouse, social interaction disorder, estranged family members.

Depression in CRF patients brings many disadvantages. CRF patients who are depressed can increase morbidity, hospitalization and mortality compared to CRF patients who are not depressed. Besides depression can also cause non-compliance with medication, dialysis therapy and low quality of life (Palmer et al., 2013). A meta-analysis study conducted by Palmer, et. al. (2013) showed a strong relationship between depression and all causes of death with a relative risk of 1.59 with a moderate level of heterogenity. CRF patients who experience depression show low levels of adherence to medication, dialysis regimens and low quality of life which ultimately leads to increased use of health care facilities and increased mortality and morbidity (Kimmel, Cohen, & Peterson, 2008).

The high rate of depression in hemodialysis patients requires ongoing treatment. Early detection of depression in hemodialysis patients is an important first step to further determine what factors influence the occurrence of depression in hemodialysis patients. But it has been fully assessed about factors that have affected depression in hemodialyis patients.

Methods

The design of this study is a cross-sectional design, with consecutive sampling. There were 119 CRF patients being respondent with the inclusion criteria in this study were able to communicate verbally using Bahasa Indonesia and were outpatients who had received hemodialysis for at least 3 months. The research was conducted in May 2017 at

hemodialysis unit in East Jakarta. The instrument used were the Beck Depression Inventory (BDI) questionnaire to measure depression and The Medical Outcomes Study Social Support Survey (MOS-SSS). BDI questionnaire has been translated in Indonesian language by Waluyo (2014) with alpha cronbach 0,822. While MOS-SSS questionnaire has been translate by researcher with alpha cronbach 0,907. This study was approved by the research ethics committee and the head of hospital. Before the study begin, respondents were being explained by the researcher, and all the participants provided written informed consent.

The data were analyzed using bivariate analyses. The numerical data were presented with mean values, with ± standars deviations when they followed a normal distribution and median (intequartile range) when they did not follow normal curve. The normality test used in this study was Kolmogorov-Smirnow Independent t-test was used in order to control the correlation between a quantitative continous variables which followed the normal qurve and a qualitative variable with two categories. Chi Square was used to control the correlation between two qualitative variable with two categories. One way annova used to control the correlation between quantitative variables with normal curve and qualitative variables. Kruskal walis used to control the correlation between quantitative variables with abnormal curve and qualitative variables. A p-value lower than 0.05 were considered as statiscally significant. To perform the statistical analysis the IBM SPSS Statistic version 13 (SPSS Inc., 2003, Chicago USA) software was used.

Results

In this study, the mean age of the patients was 54.95 years. The majority of the respondents were males 60 person (50,4%), senior high-school graduates 49 person (41,2%), unemployed 88 person (73,6%), undergoing hemodialysis twice a week 109 person (91,6%) and the mean duration of hemodialysis was 32.67 months (SD: 32.28). Characteristics of the respondents are presented in Table 1. In table 2, majority woman and man have no depression, majority respondent with hypertension have no depression, majority respondent with not adequate hemodialysis have no depression, majority respondent wih high school education have no depression, majority respondent which have hemodialysis twice a week have no depression, majority unemployed respondent have mild depression.

Table 1.

Characteristics of Respondents and Hemodialysis Information (N=119)

Characteristic	N	%
Age		
(*M*= 54.95, *SD*= 11.61, *Min-Max*= 27-81 years)		
Gender		
Female	59	49.6
Male	60	50.4
Education		
Elementary	16	13.4
Junior High	19	16.0
Senior High	49	41.2
University	35	29.4
Occupation		
Unemployed	88	73.6
employed	31	26.4
Frequency of HD		
2 times a week	109	91.6
3 times a week	10	8.4
Dialysis adequacy		
Not adequate	117	98.3
Adequate	2	1.7
Depression		
Normal	59	49.6
Mild	49	41.2
Moderate	8	6.7
Severe	3	2.5
Spiritual level		
Low	58	48.7
High	61	51.3
Time undergoing Hemodialysis		
(*M*= 32.67, *SD*= 32.28, *Min-Max*= 3-192 months)		
Hemoglobin Level (*M*= 7.58, *SD*= 1.49, *Min-Max*= 5.2-13.1mg/dl)		
Inter Dialytic Weight Gain (IDWG)		
(*M*= 2,13, *SD*= 1,10, *Min-Max*= 0-5 kg)		
Ureum		
(*M*= 59,89, *SD*= 25,06, *Min-Max*= 14-155 mg/dl)		
Duration of hemodialysis		
(*M*= 4.30, *SD*= 0,433, *Min-Max*= 4-5hours)		
Quality of Life		
(*M*= 62.51, *SD*= 1.72, *Min-Max*= 59.38-65.63)		

Note: M= Mean, SD= Standar deviation, n= frequency, %= percentage

Table 2.

Relationship between gender, hypertension, hemodialysis adequacy, education, occupation, frequency of hemodialysis, access of vascular, and spiritual level with depression (N=119)

	Depression								Total		p-value
	Not depression		Mild		Moderate		Severe				
	n	%	n	%	n	%	n	%	n	%	
Gender											
Woman	29	49.2	24	40.7	4	6.8	2	3.4	59	100	0.948
Man	30	50	25	41.7	4	6.7	1	1.7	60	100	
Total	59	49.6	49	41.2	8	6.7	3	2.5	119	100	
Hypertension											

Not Hypertension	20	55.6	15	41.7	1	2.8	0	0	36	100	0.412
Hypertension	39	47	34	41	7	8.4	3	3.6	83	100	
Total	59	49.6	49	41.2	8	6.7	3	2.5	119	100	
adequacy											
Not adequate	59	50.4	47	40.2	8	6.8	3	2.6	117	100	0.406
adequate	0	0	2	100	0	0	0	0	2	100	
Total	59	49.6	49	41.2	8	6.7	3	2.5	119	100	
Education											
SD	6	37.5	8	50	2	12.5	0	0	16	100	0.082
SMP	7	36.8	10	52.5	0	0	2	10.5	19	100	
SMA	24	49	22	44.9	2	4.1	1	2	49	100	
PT	22	62.9	9	25.7	4	11.4	0	0	35	100	
Total	59	49.6	49	41.2	8	6.7	3	2.5	119	100	
Occupation											
Unemployed	38	43.2	40	45.5	7	8.0	3	3.4	88	100	0.106
Employed	21	67.7	9	29	1	3.2	0	0	31	100	
Total	59	49.6	49	41.2	8	6.7	3	2.5	119	100	
Frequency of Hemodialysis											
2x/week	55	50.5	44	40.4	7	6.4	3	2.8	109	100	0.836
3x/week	4	40	5	50	1	10	0	0	10	100	
Total	59	49.6	49	41.2	8	6.7	3	2.5	119	100	
Access of vascular											
Cimino	49	50.5	39	40.2	6	6.2	3	3.1	97	100	0.940
CDL	8	44.4	8	44.4	2	11.1	0	0	18	100	
Femoral	2	50	2	50	0	0	0	0	4	100	
Total	59	49.6	49	41.2	8	6.7	3	2.5	119	100	
Spiritual level											
low	19	32.8	29	50	8	13.8	2	3.4	58	100	0.001*
High	40	65.6	20	32.8	0	0	1	1.6	61	100	
Total	59	49.6	49	41.2	8	6.7	3	2.5	119	100	

*$p < 0.05$

The bivariate analysis showed in table 3. The results of the analysis of the relationship showed there were no significant relationship between age, gender, education, occupation, time undergoing hemodialysis, Hb level, adequacy of hemodialysis, frequency of hemodialysis, access of vascular, hypertension, social support and Intra Dialytis Weight Gain (IDWG) with depression. Only spiritual variable has significant relationship with depression.

Table 3. Bivariate test

Variables	Bivariate test	*p-value*
Age	One way anova	0.774
Gender	Chi-square	0.948
Education	Chi-square	0.082
Occupation	Chi-square	0.106
Time undergoing hemodialysis	Kruskal walis	0.937
Hb level	Kruskal walis	0.404
Adequacy of hemodialysis	Chi-square	0.406
Frequency of hemodialysis	Chi-square	0.836
Access of vascular	Chi-square	0.940
Hypertension	Chi-square	0.412
Social support	Kruskal walis	0.157
Spiritual level	Chi-square	0.001*
IDWG	Kruskal walis	0.787

$p < 0.05$

Discussion

In this study, some respondent had mild, moderate and severe depression, while majority of respondents were normal. Previous studies conducted by Waluyo (2014) obtained an average level of depression in hemodialysis patients 18.76 (moderate depression). While research conducted by Septiwi (2011) shows that more respondents have mild depression than those with moderate depression.

Majority of respondents had high spiritual level in this study. This result in line with study conducted by Spinale, et al (2008) who found the mean score of spirituality in hemodialysis patient was high (mean score 17,5 in range 0-20). Spirituality is important for hemodialysis patients, to make a future plans for life while they adapted with hemodialysis therapy, and to faced the prospect of death (Walton, 2007). Because the physical impact of chronic kidney disease, medication side effects and dialysis treatment were negatively affect patients roles and activities and also challenges patient's spirituality (Arici, 2014; Mulder & Sikken-Kersten, 2016).

There were no significant relationships between age, education and social support with depression in this study. This result in line with research conducted by Astiti (2014), where there is no significant relationship between age, education, marital status and family support with depression in hemodialysis patients.

In contrast to the results of research conducted by Setiawan and Novianti (2014) found that there is a significant relationship between the age of respondents with depression, this is evidenced that in the age group > 50 years experience high levels of depression. In line with Nevid, et al (2003) which states that depression is most common in elderly patients, this is because in the elderly there is a tendency to deny that he has a problem because he may feel he is not as fresh as before. Depression in the elderly is also caused because the person concerned suffers from several physical illnesses so that they overlap, and then depression occurs. In this study, more male respondents suffered from depression than female respondents. This is in line with previous studies conducted by Rustiana (2012). According to Ruli (2008) men are indeed more susceptible to chronic kidney failure than women, whereas from depression women are more susceptible to depression because women more often recognize depression than men and doctors are more able to recognize depression in women.

In this study, there was significant relationship between spiritual level and depression in hemodialysis patient. This result in line with previous study who found that spiritual and religious beliefs correlated with decreased levels of depression (Patel, 2002). Martinez`(2014) also found that poor mental health and the presence of psychological stress, sleep disturbance and psychosomatic complaints were associated with lower existential and spiritual wellbeing. The other study conducted by Davison (2013) found that spiritual is a significant predictor of mental quality of life. This can be explained by research conducted by Kabat-Zinn, et al (1992) which states that religious practices activate various parts of the brain, including in the structure of the frontal lobes. Activation of the frontal lobes can lead to regulation of the functioning of the autonomic nervous system by connecting the frontal lobes and the limbic, hypothalamic and amygdala nerve. Religious practices such as meditation are also related to immune system. The autonomic nervous system can reduce blood pressure, speed pulse, respiration and cortisol levels and are effective for reducing stress, anxiety and panic.

Study conducted by Narayaanasamy (2002) shows that spirituality is coping mechanisms and also important factors that contribute to recovery client. The relationship of spirituality and activity is explained in the mechanism that includes central nervous system, neurotransmitters, endocrine and immune systems. This

matter described when a person experiences stress then the endocrine or system Catecholamines consisting of dopamine, norefinephrine and efinephrine will change impulse stress function in cardiovascular reactivation due to increase catecholamines, this will reduce the body's immune system regulatory reaction. When stress occurs over a long period of time eating will potentially produce negative health. That is why religious practice can improve the body's response to stress which has a positive effect on health (Selbold, 2007).

Conclusion

For conclusion, there was significant relationship between spiritual level and depression. Based on the findings, as a nurse we can promote better spiritual level for the patient and family to reduce depression in hemodialysis patient.

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