



The Effect Of Intradialysis Exercise With Peaceful End Of Life Approach To Fatigue Of End Stage Renal Disease Patients Who Have Hemodialysis

Yunita Amilia¹, Abu Bakar², Ima Nadatien³

Program Studi: S2 Keperawatan (Magister Terapan keperawatan) UNUSA

Fakultas Keperawatan Universitas Airlangga Surabaya

Fakultas Keperawatan dan Kebidanan, Kampus UNUSA, Surabaya Jawa Timur, 60237 Indonesia

Master Study Program of Applied Nursing St. Smea No. 57, Wonokromo, Surabaya (Kampus A)
Tower UNUSA St. Jemursari No. 57, Jemur Wonosari, Wonocolo, Surabaya (Kampus B)

Email: yunitaamilia003.mk17@student.unusa.ac.id

Aankyunita12@gmail.com

Abstract: Introduction: Hemodialysis is an attempt to reduce uremia symptoms in End Stage Renal Disease (ESRD) patients. Fatigue is a common problems that occurs in 60% to 97% of patients who undergoing hemodialysis. This study aims to determine the effect of intradialysis exercise using peaceful end of life approach to fatigue of ESRD patients who undergoing hemodialysis. **Method:** The design of this study was Quasy-Experimental with a pre and post test control group design approach. The sample in this study was 32 respondents, 16 intervention groups and 16 control groups, using the Simple Samples technique of Random Sampling. The technique used was the lottery technique. Data was collected using a questionnaire. Fatigue measurements used the chalder fatigue scale The analysis was carried out using paired t-test and independent t-test with a 95% confidence interval ($\alpha = 0.05$). **Results and analysis:** The data analysis by using Paired T-test and Independent T- test with $\alpha = 0,05$. Paired t-test ($p = 0,000$). Paired t-test ($p = 0,000$) indicated there was a decrease in fatigue of 3.31 after being given an intradialisis exercise with a peaceful end of life approach. The results of the statistical test using the Independent T-test ($p = 0.000$). **Discussion and Counseling:** Based on these descriptions, the researcher concluded that an intradialisis exercise with a peaceful end of life approach had an effect on decreasing the rate of fatigue of ESRD patiens. With the hope that it can be applied in hospitals.

Keywords: Intradialysis exercise, peaceful end of life, fatigue, ESRD.

1. INTRODUCTION

Hemodialysis is an attempt to reduce uremia symptoms in End Stage Renal Disease (ESRD) patients, thus the clinical picture of patients can also improve. The clinical description of patients is mostly moderate nutrition, anemia conjunctiva, peripheral edema, hypertension, weakness, fatigue, lethargy, and nausea (Sitifa, 2018). ESRD patients undergoing hemodialysis experience varying comorbid conditions, social situations, psychological, financial stress, and treatment. Those symptoms that are often experienced by the patients are closely interrelated and can make fatigue problems and affect the assessment of quality of life (Finkelstein & Finkelstein, 2018). The process of hemodialysis which takes approximately 3-5 hours for 2 to 3 times per week usually causes physical stress, fatigue, headaches and other symptoms. According to Jablonski (2007),the symptoms of complications caused by the hemodialysis process make patient discomfort, stimulate raising of stress, affect the patient's quality of life, worsen the patient's condition and even cause the death (Sakitri, 2018).

Fatigue is a common complaint thatfelt by patients undergoing hemodialysis. The 2014 International Standardized Outcomes in Nephrology-Hemodialysis (SONG-HD) mentionsthat fatigue is one of the four main problems that occur in patients undergoing hemodialysis after vascular access problems, cardiovascular disease and mortality. Fatigue occurs in 60% to 97% of patients undergoing

hemodialysis (Ju et al., 2018) and (Yang et al., 2018). The study conducted by sodikin and suparti (2015) showed that there was a significant relationship between the history of physical exercise and the level of fatigue. This is very important for nurses to carry out fatigue assessment for patients undergoing hemodialysis. Educational activities are also very important to do for hemodialysis patients, which are how to treat them. Nurses have to implement and apply more comprehensive nursing care by examining the level of fatigue in depth, thus it can provide appropriate nursing interventions (Sodikin&Suparti, 2015). The strategies to overcome fatigue can be done based on the results of the study, which are by physical exercise, the used of infrared light and relaxation: yoga. Intradialysis physical exercises that also can be used based on the results of the study are aerobic exercise, resistance exercise, combined aerobic resistance exercise, passive exercise and electrical stimulation, etc. (Seong,2015).

The implementation of an intervention to overcome fatigue that is possible as a patient self management is a physical exercise intervention by involving patients directly and the implementation can be carried out independently by the patient, therefore they can manage their conditions at any time to reduce the level of patient dependence which has an impact on improving the patient's quality of life (Malisa& Ibrahim, 2016). Besides that, intradialysis physical exercise can reduce the occurrence of arm muscle weakness and the depression in hemodialysis patients (Song, Hu, Diao, Chen, & Jiang, 2018). Intradialysis physical exercise can also reduce creatinine levels in the blood. Exercises carried out stimulate the growth of capillary blood vessels in the muscles. This will accelerate the conduction of oxygen to the muscles, improve the circulation as a whole, stabilize blood pressure and release the results of metabolic waste such as lactic acid from the muscles that are released during hemodialysis, thus the metabolic waste excretion during hemodialysis being increased with the results of metabolic waste excretion from exercise intradialysis that was applied (Juwita, Febrita, & Putri, 2017)

ESRD patients undergoing hemodialysis are patients with terminal disease. Nurses are expected to know the complex treatment of patients who experience terminal illness and how nurses can contribute to providing the ultimate calmness of a patient's life. Nurses are also expected to identify the needs of patients with terminal diseases and provide clinical guidance in treatment and qualified services. The application carried out by nurses is the result of the development of the Peaceful End Of life theory (Ruland & Moore, 1998).

2. METHODS

The research design used of this study was Quasy-Experimental with the approach of pre post test control group design. The population in this study was all ESRD patients who underwent hemodialysis in the Hemodialysis Room of the RSUD dr. Muhammad Zyn, Sampang Regency, they were 45 patients. The sample size in this study was 32 people divided into 16 respondents in the control group and 16 respondents in the treatment group. The sampling technique was by simple random sampling technique, which was the selection of respondents in a random or random way that was random sampling of members of the population regardless of the strata that exist in the population (Sugiyono, 2010). The location of this study was carried out in the Hemodialysis Room of the Dr. Muhammad Zyn Hospital in Sampang Regency. This study was conducted for one month in April-May 2019. The instrument of collecting data used by researchers to measure fatigue was the Chalder fatigue scale.

The data analysis of this study used Paired T-test to determine differences of the average scores of pre and post fatigue in the control group and intervention group. While the Independent T-test was used to determine differences in the average score of fatigue difference in the control group and intervention group after being given intradialysis training through a peaceful end of life approach. Interventions which given were for 4 weeks or 2 times per week. The exercise was given when the patient was undergoing hemodialysis.

4. THE RESULT OF THIS STUDY

4.1 Characteristics of Respondents

Table 4.1 Table of Characteristics of respondents in the intervention group and the control group of remembrance intradialysis exercise with peaceful end of life approach in Hemodialysis Room RSUD dr. Muhammad Zyn Sampang Regency, 2019.

Characteristics	Group				Total	
	Intervention		Control		F	%
	F	%	F	%		
Age						
Late teens	0	0	1	6,2	1	3,1
Early adult	0	0	2	12,5	2	6,2
Late adults	5	31,2	4	25	9	28,1
Early Elderly	7	43,8	3	18,8	10	31,2
Late Elderly	3	18,8	6	37,5	9	28,1
Old man	1	6,2	0	0	1	3,1
Total	16	100	16	100	32	100
Gender						
Female	7	43,8	10	62,5	17	53,1
Male	9	56,2	6	37,5	15	46,9
Total	16	100	16	100	32	100
Education degree						
Undergraduate	3	18,8	2	12,5	5	15,6
Elementary school	4	25	6	37,5	10	31,2
Junior High School	0	0	3	18,8	3	9,4
Senior High School	4	25	2	12,5	6	18,8
Bachelor degree	5	31,2	3	18,8	8	25
Total	16	100	16	100	32	100

Characteristics	Group				Total	
	Intervention		Control		F	%
	F	%	F	%		
Occupation						
unemployment	12	75	8	50	20	62,5
Employee	0	0	1	6,2	1	3,1
Entrepreneur	2	12,5	5	31,2	7	21,9
Government employess	2	12,5	2	12,5	4	12,5
Total	16	100	16	100	32	100

Source: Primary data 2019

Based on the finding above in the intervention group nearly half of the respondents in the age range of early elderly (43.8%), the gender of the majority (56.2%) of respondents were male, the level of education was found that almost half of respondents were bachelor degree (31.2%) and based on employment status, it was found that most unemployment (75%).

In the control group, almost half in late elderly) (37.5%), for the gender of the majority of respondents were female (62.5%), the level of education was found that almost half of respondents were elementary school education (37.5%) and half of respondents were unemployment (50%).

4.2 The differences of the average scores of the pre and post fatigue in the intervention group and the control group would be presented in the following table

Table 4.2 The differences of the average scores of the pre and post fatigue in the intervention group and the control group

Variable	Group	n	Time	Mean ± SD	Median	Min-max	P
Fatigue	Intervensi	16	Pre	16,94±4,34	18	9-23	0,000
			Post	12,19±3,69	11,5		
	Kontrol	16	Pre	18,56±4,66	19	9-26	0,002
			Post	20±5,17	20		

Source: Primary data, 2019

The average fatigue score before the intervention of the intradialysis exercise using the peaceful end of life approach for the intervention group was 16.94 ± 4.34 after being given an intradialysis exercise intervention in the peaceful end of life approach with an average fatigue score of 12.19 ± 3.69 . The results of the Normality test using SaphiroWilk showed that the data were normally distributed in the intervention group and the control group. The results of the paired t-test analysis showed that $p = 0.000$, it meant that there were a significant difference and a decrease in the average fatigue score in the intervention group before and after the intradialysis exercise in a peaceful end of life approach. In the control group that received intervention according to hospital standards experienced an increase of the average fatigue score which was previously 18.56 ± 4.66 , the average fatigue score increased to 20 ± 5.17 . The results of the paired t-test analysis showed that $p = 0.002$, that mean there were significant differences and an increase of the fatigue score in the control group according to hospital standards.

4.3 The difference of the average score of the pre and post fatigue differences in the intervention group and the control group will be presented in the following table:

Tabel 1.2 The difference of the average score of the pre and post fatigue differences in the intervention group and the control group

Variable	Group	n	Mean Δ ± SD	Median	p
Fatigue	Intervensi	16	-4,75±2,543	-5,50	0,000
	Kontrol	16	1,69±1,250	2,00	

Source: Primary data 2019

The average score of the fatigue difference in the intervention group was -4.75 ± 2.543 and the difference in the average fatigue score of the control group was 1.69 ± 1.250 . The results of the Normality test using SaphiroWilk showed that the pre and post difference data were normally distributed in the intervention and control groups. Homogeneity test results obtained data that were not homogeneous thus what was interpreted was Equal variances not assumed (can be seen in appendix page 122). The results of the Independent t-test were $p = 0.000$, it meant there was a significant difference of fatigue scores in the intervention group and the control group after an intradialysis exercise using the peaceful end of life approach.

5. DISCUSSION

5.1 Fatigue in End Stage Renal Disease patients undergoing hemodialysis

Based on the results of the study, the fatigue of the intervention group experienced a decrease in almost all fatigue rarely and the fatigue of the control group that taking action according to hospital

standards mostly increased to frequent fatigue. The cause of fatigue in hemodialysis patients was influenced by various factors including physiological factors, the presence of accumulated metabolic waste, abnormal energy consumption and decreased appetite. Psychological problems were the main problem that causes fatigue in patients undergoing hemodialysis (Rezaei, Jalali, Jalali, & Khaledipaveh, 2018). Furthermore, fatigue was also caused by no physical activity (sedentary habits) and emotional distress; pain (Horrigan et al, 2012, Gordon PL, Doyle JW, 2011, Jhamb et al., 2019). The age of respondents in this study of intervention group was almost half the age of the early elderly and the control group was almost half the age of the elderly. Based on the theory of age factors over 40 years, there would be a progressive decrease in glomerular filtration rate until the age of 70 years as much as approximately 50% of normal (Smeltzer & Bare, 2010).

Fatigue was also commonly experienced by patients undergoing hemodialysis (Ju et al., 2017). This could be caused by increasing age and a psychosocial effect of chronic disease (Manisha Jhamb, Steven D Weisbord, Jennifer L. Steel, 2008). Psychological factors included stress, depression, anxiety can trigger fatigue. The stress response entered the central nervous system, and then the hypothalamus released the corticotrophin hormone releasing factor that would stimulate the sympathetic nervous system to secrete norepinephrine which was a vasoconstrictor and results in smooth muscle contraction (Guyton, 2014). Other studies suggested that there was a relationship between fatigue, pain and depression (Farragher, Polatajko, & Jassal, 2017).

In this study, the intervention group experienced a decrease in fatigue after being given an intradialysis training intervention with a peaceful end of life approach. In the control group who received intervention according to hospital standards experienced increased fatigue. Other factors that affected fatigue were physical exercise, duration of hemodialysis, hemoglobin levels, income, and education. The dominant factors that influence the occurrence of fatigue are income factors, physical training (Sulistiani, 2012). Physical exercises that could affect fatigue were exercises carried out during the process of hemodialysis or intradialysis. The results showed that the level of education in the intervention group was almost half that of D3 / S1 education. The study of Sulistiani et al. (2012) mentioned that one of factors that were related with fatigue in chronic kidney disease patient undergoing hemodialysis had a low education. Fatigue was a common problem experienced by ESRD patients undergoing hemodialysis, this could be due to various kinds of things such as underlying chronic disease conditions, hemodialysis treatment schedules that must be followed routinely, expenses during undergoing hemodialysis, distance to the hemodialysis treatment site, feeling burdened because of feeling burdened to the family during the period of hemodialysis for the rest of their life, and the threat of death.

5.2 The Effect of intradialysis exercise on a peaceful end of life approach to fatigue in Renal Disease End Stage patients undergoing hemodialysis.

The results of the analysis of the paired t-test showed a significant difference. There was a decrease in fatigue in the intervention group before and after the intradialysis exercise using the peaceful end of life approach and an increase in fatigue in the control group according to hospital standards. The results of the Independent t-test analysis showed a significant difference and there was a decrease in fatigue in the intervention group and an increase in Fatigue in the control group. The results of this study indicated that intradialysis training using a peaceful end of life approach had an effect on reducing fatigue in patients undergoing hemodialysis.

This study was in line with the research conducted by Sakitri (2018) which showed that there was an influence of intradialysis on fatigue in patients undergoing hemodialysis, because it could reduce fatigue in hemodialysis patients, increase Hb and reduce the occurrence of hypotension during hemodialysis (Sakitri, 2018). This study was also supported by previous research, which was there were differences in fatigue levels in hemodialysis patients who do physical exercise routinely or not, and who have never done physical exercise (Sulistini, 2012). Physical exercise could affect fatigue, it caused physical exercise had many benefits, which could increase blood flow to the muscles and the

number of capillaries and enlarge the capillary surface area so as to increase the transfer of urea and toxins from tissue to vascular then flow to dialyzers or hemodialysis machines (Parson et al, 2006)

Intradialysis training was rational exercise when given to ESRD patients remembering there were some benefits (Cheema, 2005). Previous research also showed that intradialysis exercise could increase Kt / V-urea and creatinine clearance during dialysis (Ferreira, Bohlke, Correa, Dias, & Orcy, 2019). Physical exercise could also improve muscle health. Physical exercise carried out stimulates the growth of small blood vessels (capillaries) in the muscles. This would help the body to efficiently deliver oxygen to the muscles, could improve circulation as a whole and reduced blood pressure and released the results of irritating metabolic waste such as lactic acid from the muscles (Sulistyaningsih, 2010). Physical exercise that could affect fatigue was one of the exercises carried out during the process of hemodialysis or intradialysis. Intradialysis exercises could reduce fatigue levels (Chang, Cheng, Lin, Gau, & Chao, 2010). In this study, the exercise carried out was an intradialysis exercise using a peaceful end of life approach; this was a physical exercise for comfort (simple movement) by involving the family. Therefore, the patients and their family were close and eliminated the pain.

6. CONCLUSION

Intradialysis exercises using a peaceful end of life approach further reduce fatigue in ESRD patients undergoing hemodialysis rather than intervention (advocating eating, drinking and sleeping during hemodialysis) according to hospital procedures.

7. SUGGESTION

For nursing services, it is expected that ESRD patients undergoing hemodialysis can do routine exercises during hemodialysis or when patients are at home. For hospital agencies, it is expected that intradialysis training using a peaceful end of life approach becomes one of the nursing intervention materials that can be applied in hospitals. Standard operational procedures in intradialysis peaceful end of life training can be modified to adjust the needs and policies of the hospital. Therefore, management can be oriented towards fatigue reduction in ESRD patients undergoing hemodialysis, thus quality of life will improve.

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