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THE PHYSICAL INDICATORS OF QUALITY OF LIFE FOR HEMODYALISIS PATIENTS

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Abstract

The measurement of quality of life using physical indicators is required to validate the use of quality of life questionnaire. Physical indicators of quality of life for hemodialysis patients include interdialytic weight gain, edema, muscle strength, upper arm circumference and blood pressure. This study used an experimental research design with pre-test post-test approach. Samples were divided into an intervention group consist of 6 people and a control group consisting of 5 people which were randomly assigned. The study concludes that all physical indicators of quality of life have improved although not all indicators reach significant values. Physical indicators which experience significant improvement are muscle strength, upper arm circumference and systolic blood pressure after hemodialysis. There are significant differences of physical indicators of quality of life of the circumference of the upper arm, ankle circumference, edema and systolic blood pressure after hemodialysis between the experimental group and the control group.

Introduction

Kidney function will be significantly impaired if it is experiencing chronic/terminal renal failure. Patients with chronic renal failure require renal replacement therapy for the rest of their life. One of renal replacement therapies is hemodialysis. Adequate hemodialysis can improve survival with minimal complications, making life healthier and better. The low quality of life for hemodialysis patients is reported by patients with poor physical health (Feroze, 2011). Physical symptoms experienced by patients with hemodialysis are complications of hemodialysis which include hypertension, intradialytic hypotension, left heart failure, ascites, pleural effusion, congestive heart failure and even dead. Quality of life is based on physical indicators which validate the perceptional quality of life.

Based on WHO, it is estimated that more than 500 million people have chronic kidney disease globally. About 1.5 million people have to dependently live on dialysis. The numbers of patients with chronic renal failure in Indonesia, based on the data center and information Indonesia Hospital Association, are estimated around 50 million people per one million inhabitants, 60% are elderly (Feroze, 2011). The prevalence rate of terminal kidney disease patients who undergo hemodialysis per million population of Indonesia in 2002 is 10.2, in 2003 there is 11.17, in 2004 there is 13.8, in 2005 there is 18.4, and 2006 there is 23.4. A research on the geographic distribution of chronic kidney disease in Bali confirms that the average prevalence of chronic kidney disease is 56%.

The purpose of hemodialysis is to improve fluid composition to achieve fluid balance which is expected to prevent a deficiency or excess fluid. This excess fluid can

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cause significant effects on the cardiovascular complications in the long term. The liquid consumed by kidney failure patients should be monitored carefully because thirst is no longer a hint that can be used to determine the body's hydration. Excessively free intake may lead to circulation overload, edema and water intoxication. Too little intake will lead to dehydration, hypotension and worsen renal function impairment.

The exact parameter to be observed in addition to the data of liquid intake and discharge is the measurement of body weight daily. Patients must follow the restrictions on liquids in order to get dry weight. Interdialytic weight gain (IDWG) is an indicator to determine the amount of fluid intake during the interdyalitic period and patient adherence to regulation of fluid in patients treated with HD (Thomas, et.al, 2009).

Food intake will also cause excess sodium and water and contribute to interdialytic weight gain/IDWG (Lopez, 2005). Regular IDWG assessment is essential for nurses and patients to determine the amount of fluid required during dialysis. The patient's weight is an accurately simple way to measure fluid addition which is clinically proven has edema, jugular venous pressure, hypertension and breathing difficulties. Those clinical symptoms cause physical health problems and affect the patients' quality of life (Thomas, et.al, 2009).

The implementation of food counseling, fluid restriction, lifestyle modification, disease and treatment in kidney failure patients in the intervention group show an improved quality of life 2%, whereas in the control group, there is decrease of quality of life. Therefore, the correct counseling can improve the quality of life in patients with chronic renal failure. This way can be a model in treating patients with chronic renal failure (Thomas, et.al, 2009). Self-management includes the compliance and supporting partners in the treatment of individual, the knowledge and skills to take care of themselves, the decisions making about their own care, problems identification, goals setting, and monitoring and management of the symptoms (Lindberg, 2010).

Self-management for patients on hemodialysis treatment process comes from a very relevant behavioral adaptation with an underlying premise that change behavior usually does not happen all at once. Noncompliance can be seen as a form of lack of self-management, and therefore encouraging sustainable strategies for self-management is an important goal for renal care team (Lindberg, 2010).

Quality of life of hemodialysis patients fluctuates because it is influenced by physical health, psychological health, level of independence, social relationships, personal beliefs and their relationship with the environment. Renal failure patients undergoing hemodialysis require lifelong support from caregivers and families to improve their quality of life so that patients undergoing HD will be able to maintain and stabilize the functional abilities, needs, eliminating the symptoms and restore a sense of comfort to live the rest of his life (Thomas, et.al, 2009).

Complications of hypotension and intradialysis hypertension can occur during hemodialysis and could have an effect on other complications. These complications can lead to the emergence of new complex problems such as create inconvenience, increase stress and affect quality of life, worsen the patient's condition and even cause death (Jablonski, 2007). These complications should be anticipated, controlled and overcome in order to make an optimal quality of life of patient and worse condition does not occur. The purpose of this study is to determine the physical indicators of quality of life for hemodialysis patients. Fluid management is an innovative nursing action to improve the quality of life for hemodyalisis patients.

Method

This research used experimental research design with pre-test post-test approach and. Samples in this study were patients who underwent hemodialysis 3-4 times as many as 11 people. Respondents were divided into experimental group (6 people) and control group (5 people) who were determined randomly. This study used a total sampling with inclusion criteria as follows: willing respondents and could read and write, the patient's age 20-60 years old, patients undergoing hemodialysis

Table 1. Distribution of Age Groups of the Treatment Group and the Control Group of Patients Who Undergo Hemodialysis in Unit Hemodialysis RSUD.dr. Harjono Ponorogo December 2012 until April 2013 (n = 11)

Variables	N	Minimum	Maximum	Mean	SD	95%CI	p-value
Age (P)	6	38	60	50	4,61	39,29-60,70	0,200
Age (K)	5	20	70	50,20	1,86	26,91-73,48	0,200

3-4 times, and patients underwent hemodialysis 9-12 hours / week. Exclusion criteria included patients with renal failure who could not be interviewed, renal failure patients who had comorbid disease (myocardial infarction, hepatitis, HIV AIDS), patients who were not undergoing routine hemodialysis and patients who were undergoing HD outside the specified schedule.

Research instruments used included guidebooks for fluid management, weight scales that had been tested on its reliability with repeat measure, sphygmomanometer calibration had been done, Handgrip, measuring tape and measuring cup. There were 6 physical indicators of the quality of life there namely edema, IDWG, upper arm circumference, ankle circumference, muscle strength and blood pressure.

The data was taken in two periods, the first stage was before the intervention was done and the second stage was after interventions were done included demographic data of quality of life and physical indicators. Extension of fluid management was done through during intradialysis. Patients were also briefed about the data filling for 12 weeks at home. The filling information included the number of urine every day, the number of drink every day, food intake, body weight and size of the ankle circumference. Data retrieval was done after the two-stage monitoring of fluid balance during hemodialysis 12 times.

Univariate analysis investigated the mean, standard deviation, the lowest value, highest value and confidents interval of common data, the physical indicators of quality of life (blood pressure, IDWG, muscle strength, edema, LLA and ankle circumference). Bivariate analysis was an analysis to determine differences in physical indicators of quality of life before and after interventions performed well in the intervention group and the control group using Wilcoxon Signed Rank test is the data distribution was not normally distributed, and using Paired Samples Test if the data was normally distributed. Differences in the quality of life and physical indicators of quality of life of patients in the control group and the experimental group who underwent hemodialysis before and after the treatment was administered using bivariate analysis with the Mann Witney if the data distribution was not normal and independent test samples t-test was used if the data was normally distributed.

Results and Discussion

Based on table 1, it shows that the average age of respondent in the treatment group is 50 years with minimum age of 38 years old and maximum age of 60. The average age of respondents in the control group is 50.20 years with the minimum age of 20 years and maximum age of 70 years.

Based on Table 2, it shows that all respondents in the experimental group are male 6 (100%). Respondents in control group are mostly female, 3 (60%). Most respondents in treatment group have high school, 4 people (66.66%). The education of respondents in control group is mostly elementary and high school education, 2 people respectively (40%). The occupation of respondents in the treatment group is mostly farmers, 3 people (50%). The occupation of respondents in the control group is mostly farmers, 3 people (60%).

Based on Table 3, it shows that the average value of IDWG respondents in the experimental group is 1.57%, with minimum value -5.57% and maximum value 12%. The average value of IDWG respondents in the control group is 10.96%, with minimum value 0% and maximum value 16.22%. the average value of upper arm circumference (LLA) of respondents in the experimental group is 25.71 cm, with minimum value 21 cm and maximum value of 28.30 cm. The average value of upper arm circumference of respondents in control group is 27 cm, with minimum value

Table 2. Frequency Distribution of Respondents Patients Characteristics who Undergo Hemodialysis in the hemodialysis unit RSUD.dr. Harjono Ponorogo December 2012 until April 2013 (n = 11)

Respondent Characteristic	Treatment Group	Control Group
Gender		
Male	6 (100)	2(40)
Female		3(60)
Education		
SD	1(16,67)	2(40)
SMP	1(16,67)	1(20)
SMA	4(66,66)	2(40)
Occupation		
Farmer	3(50)	3(60)
Trader	1(16,67)	0
Self-employed	1(16,67)	0
Retirement	1(16,67)	1(20)
Unemployed	0	1(20)

Table 3. The Changes in Physical Indicators of Quality of Life Before Treatment and After Treatment in the Experimental Group and the Control Group. Patients Undergoing Hemodialysis in Hemodialsis Unit Hospital Dr. Harjono Ponorogo February 2013 (n = 11)

Variables	Mean before treatment	Mean after treatment	p-value
IDWG (P)	1,57	1,32	0,936
IDWG (K)	10,96	2,32	0,062
Ankle circumference (P)	21,50	21,16	0,157
Ankle circumference (K)	22,40	21,20	0,004
Edema (P)	2	*Constans*	0,180
Edema (K)	2	*Constans*	0,039
Upper arm circumference (P)	25,71	25,90	0,012
Upper arm circumference (K)	23	23,52	0,374
Muscle strength (P)	12	16,83	0,027
Muscle strength (K)	10	13,40	0,062
Systolic pressure before HD (P)	118,33	143,33	0,720
Systolic pressure before HD (K)	148	150	0,640
Diastolic pressure before HD (P)	73,33	80	0,157
Diastolic pressure before HD HD (K)	80	82	0,374
Systolic pressure after HD (P)	151,67	143,33	0,42
Systolic pressure after HD HD(K)	136	146	0,189
Diastolic pressure after HD (P)	83,33	80,33	0,157
Diastolic pressure after HD (K)	78	78	1,00

Note: P = treatment, K = control

20 cm and maximum value 27 cm. The average value of ankle circumference of respondents in the experimental group is 21.50 cm, with minimum value 20 cm and maximum value 22 cm. The average value of ankle circumference of respondents in control group is 22.40 cm, with minimum value 20 cm and maximum value 26 cm.

Based on Table 3, it also shows that the average value of muscle strength of respondents in the experimental group is 12 kg, with minimum value 5 kg and maximum value 17 kg.

The average of muscle strength of respondents in the control group respondents is 10 kg, with minimum value 5 kg and maximum value 20 kg. The average value of edema of respondents in the experimental group is 2 degrees, with the minimum degree 0 and maximum degree 0. The average value of edema of respondents in the control group is 2 degrees, with the minimum degree 1 and maximum 3 degrees.

The average value of systolic pressure of respondents before HD in the experimental group is 118 mmHg, with the minimum value 80 mmHg and maximum value 150 mmHg. The average score for systolic pressure of respondents before HD in the control group is 180 mmHg, with the minimum value of 130 mmHg and maximum value of 180 mmHg. The average score of diastolic pressure of respondents before HD in the treatment group is 73.33 mm Hg, with the minimum value 60 mmHg and maximum value 80 mmHg. The average score of diastolic pressure of respondents before HD in the control group is 80 mmHg, with minimum value 70 mmHg and maximum value 90 mmHg.

Based on Table 3, it shows that the average value of systolic pressure of respondents after HD in the experimental group is 136 mmHg, with the minimum value 140 mmHg and maximum value 170 mmHg. The average value of systolic pressure of respondents before HD in the control group is 148 mmHg, with the minimum value120 mmHg and maximum value 150 mmHg. The average value of diastolic pressure of respondents after HD in the experimental group is 83.33 mmHg, with the minimum value 80 mmHg and the maximum value 90 mmHg. The average value of diastolic pressure after HD of respondents in control group is 78 mmHg, with minimum value 70 mmHg and maximum value 80 mmHg.

Based on Table 4, it shows that IDWG change before treatment in the experimental group is decreased 0.25%. Based on the statistical test of paired samples test, the p value is 0.936. The value of p is > 0.05, so it can be concluded that IDWG difference before and after the treatment in the experimental group is not significant. IDWG Change before the treatment and after the treatment in the control group is decreased 8.64%. Based on a statistical test of Paired Samples Test, the p value is 0.062. Because the value of p is > 0.05, it can be concluded IDWG difference before and after treatment in the control group is not significant. The change of arm muscle strength before and after treatments in the experimental group is increased in the value of an average of 4.5 kg. Based on the statistical test with Wilcoxon Signed Ranks Test, the p-value is 0.027. Because the p value is <0.05, it can be concluded the arm muscle strength differences before and after treatment in experimental group is significant. The change of arm muscle strength before and after treatment in the control group is increased in the average value of 3.4 kg. Based on the statistical test of Paired Samples Test, the p-value is 0.062. Because the value of p is > 0.05, it can be concluded that the difference in arm muscle strength before and after treatment in the control group is not significant.

Based on Table 4 above, it shows that there are changes in arm circumference before and after treatment in the experimental group with average value of increase 0.18 cm. Based on the statistical test Paired Samples Test, the p value is 0.012 for treatment group. Because the value of p <0.05, it can be concluded that the change of upper arm circumference measurements before and after treatment in the experimental group is significant. The change in the size of the circumference of the upper arm before and after treatment in the control group has an average increase value of 0.02 cm. Statistical test result using Wilcoxon Signed Ranks Test obtains p value 0.317. The value of p is > 0.05, so it can be concluded that the difference in size of the circumference of the upper arm before and after treatment in the control group is not significant.

Based on Table 4, it shows that there are changes in the size of the circumference of the ankle before and after treatment in the experimental group with an average decrease value of 0.33 cm. Based on the statistical test with Wilcoxon Signed Ranks Test, the p-value is 0,157. Because the value of p > 0.05, it can be concluded that the average difference between the size of the ankle circumference before and after the treatment in the treatment groups is not significant. The changes in the size of the ankle circumference before and

Table 4. The Changes Differences in Physical Indicators of Quality of Life Between the Treatment Group and the Control Group of Patients Who Undergo Hemodialysis in Hemodialsis Unit Hospital Dr. Harjono Ponorogo February 2013 (n = 11)

Variabel	N	Mean of Change	SD	P-value
IDWG (P)	6	0,25	6,70	0,073
IDWG (K)	5	8,64	7,4	
Ankle circumference (P)	6	0,33	0,51	0.020
Ankle circumference (K)	5	1,20	0,44	
Edema (P)	6	-0,50	0,83	0.010
Edema (K)	5	-2,00	0,70	
Upper arm circumference (P)	6	-0,18	0,11	0.020
Upper arm circumference (K)	5	-0,02	0,04	
Muscle strength (P)	6	-4,33	2,16	0,560
Muscle strength (K)	5	-3,40	2,96	
Systolic pressure before HD (P)	6	-25	3,14	0.110
Systolic pressure before HD (K)	5	-2,00	1,92	
Diastolic pressure before HD (P)	6	-6,67	1,03	0.480
Diastolic pressure before HD HD (K)	5	-2,00	4,47	
Systolic pressure after HD (P)	6	8,66	7,52	0.040
Systolic pressure after HD HD(K)	5	-8,00	1,48	
Diastolic pressure after HD (P)	6	3,33	5,16	0.170
Diastolic pressure after HD (K)	5	*Constant*	-	-

Note: P = treatment group, K = control group

after treatments in the control group with an average increase value of 1.20 cm. Statistical test results from Paired Samples Test shows that the p value is 0.004. The p-value is <0.05, so it can be concluded that the ankle circumference difference before and after treatment in the control group is significant.

Based on the above Table 4, it shows that there are changes in the degree of feet edema before and after treatment in the treatment group with the average decrease value of 0.5 mm. Based on the statistical test using Wilcoxon Signed Ranks Test p value = 0.18. The value of p is > 0.05, so it can be concluded that the degree change of feet edema before and after the treatments in the treatment group is not significant. The degree change of feet edema before and after the treatment in the control group is average increased 2 mm. Statistical test results using Wilcoxon Signed Ranks shows that p value is 0.039. Because the p-value is < 0.05, so it can be concluded feet edema difference before and after treatment in the control group is significant.

Based on Table 4, it shows that there are changes in systolic pressure before hemodialysis in before and after treatment in the experimental group with the average increase value of 25 mmHg. Based on the statistical test using Paired Samples Test, the p value is 0.72. The value of p is > 0.05, so it can be concluded that the average difference between systolic pressures before and after treatment in the experimental groups is not significant. The change of systolic pressure before hemodialysis before and after treatment in the control group has an average increase value of 4 mmHg. Statistical test result using Paired Samples Test has p value of 0.64. Because the value of p is > 0.05, so it can be concluded that the difference in systolic pressure before and after treatment in the control group is not significant. The change in diastolic pressure before hemodialysis before and after treatment in the experimental group has an average increase value of 6.67 mmHg. Based on the statistical test with Wilcoxon signed ranks test, p value is 0,157. The value of p is > 0.05, so it can be concluded that the average difference between diastolic pressure before hemodialysis before and after treatment in the

treatment groups is not significant. The change in diastolic pressure before hemodialysis before and after treatment in the control group has an average increase value of 2 mmHg. Statistical test result using Paired Samples Test shows p value of 0.374. The value of p is > 0.05, so it can be concluded that the difference in diastolic pressure before and after treatment in the control group is not significant.

Based on Table 4, it shows that there are changes in systolic pressure after hemodialysis before and after treatment in the experimental group with an average decrease value of 8.34 mmHg. Based on the statistical test using Paired Samples Test, the p-value is 0.042. Because the p value is < 0.05, it can be concluded that the difference in systolic pressure after hemodialysis before and after treatment in the experimental group is significant. The change in systolic pressure after hemodialysis before and after treatment in the control group has an average increase value of 10 mmHg. Statistical test result using Paired Samples Test shows that the p-value of the control group is 0.189. The value of p is > 0.05, so it can be concluded that the difference in systolic pressure after hemodialysis before and after treatment in the control group is not significant. The change in diastolic pressure after hemodialysis before and after treatment in the treatment group has average decrease value of 3.33 mmHg. Based on the statistical test with Wilcoxon signed ranks test, the p value is 0,157. The value of p is > 0.05, so it can be concluded that the difference in diastolic pressure after hemodialysis before and after treatment in the experimental groups is not significant. Changes in diastolic pressure after hemodialysis before and after treatment in the control group remain the same. Statistical test result using Wilcoxon signed ranks test shows p value of 1.00. The value of p is > 0.05, so it can be concluded that the difference in diastolic pressure after hemodialysis before and after treatment in the control group is not significant.

The result shows the respondent's age range is 20 to 70 years old (n = 11). The range of the average age of the respondents in this study distribution is 40.76 years to 59.41 years. One of the factors that influenced adherence is age. Patients' compliance in determining fluid consumption to achieve optimum dry weight is very important. Age is a strong factor on the level of patient compliance. Patients with younger age have a low compliance rate as compared with patients with older age. Patients with productive age feel motivated to recover, have a higher life expectancy and serve as the backbone of the family.

The overall respondents are male 72.72% (n = 11). This is in accordance with the characteristics of respondents by gender which was found by The ESRD Incidence Study Group that there is an increased incidence of chronic renal failure that occur in males. This is associated with poor lifestyle in patients such as smoking, alcohol, late nights, lack of drinking water, lack of exercise and eating a lot of fast food

Most of the 11 respondents are graduated from high school (54.54%). The higher the level of education a person, the more positive their behavior will be. This is because education that they obtain can lay the foundations of understanding in a person. But the level of education does not make a difference to the ability to perform self-care in hemodialysis patients. This is supported by the results of psychological research that contributes to excessive fluid intake in patients on dialysis. The model assumes that there is a tension between the need to limit fluid intake and the desire to drink. Focusing on the idea of thirst will cause increased thirst. This triggers to see other beverages and will start the process of thirst or somatic sensations, all of which can lead to a feeling of powerlessness to resist the urge to drink in the patient the bad fluid restriction (Lopez, 2006).

Generally, the 11 respondents work as farmers (54.54%). Fluid intake is associated with physical needs, habits, customs, social rituals, or disease (Thomas, et.al, 2009). Thirst is part and problems which are most severe in patients undergoing hemodialysis (Istanti, 2011). The occupation of respondents as a farmer would affect the onset of thirst. It is associated with a high level of difficulty to follow treatment recommendations, guidelines and a liquid diet. The consequences of excess fluid intake among others are associated with increased IDWG and lower extremity edema. A decrease of 0.39%

IDWG does not achieve nominal significance level. Patient adherence to fluid restriction can be evaluated based on the average weight gain in 12 sessions of hemodialysis (Arnold, 2008). Dry weight loss patients can be determined by trial and error and ideally, the trial is evaluated in two weeks. Fluid intake is a factor that contributes significantly to the IDWG (Istanti, 2011). IDWG which is more than 2.5 kg expresses weak patient adherence to fluid intake. IDWG in the range 2.5% to 3.5% of the dry weight reduces cardiovascular risk and also maintains a good nutritional status (Lindberg, 2010). Excess fluid can be prevented by the introduction of fluid per day 500-750 ml from dried urine production situation. Entry of sodium 80-110 mmol per day would be sufficient to control thirst and help patients in regulating fluids (Lopez, 2006). IDWG as an indicator determines the amount of fluid intake during the interdialysis period and patient adherence to regulation of fluid in patients receiving HD therapy. However, some experts consider that the size of the IDWG is not good because dry weight can only be estimated, while others regard it as a better alternative to measure compliance fluid for individuals with large body mass can tolerate the increased weight of the liquid greater than those with a smaller body mass. The consequence of excess fluid intake is associated with the incidence of edema (Lindberg, 2010). The decline in the percentage of IDWG also will reduce the degree of lower extremity edema, and ankle circumference.

The result of the study shows that there is decrease on IDWG, ankle circumference and edema, but it is not significant. The differences in the degree of feet edema before and after treatment in the experimental groups is not significant ($p = 0.18$). The change in the degree of feet edema before and after treatment in the control group has an average decline in value of only 0.5 mm, so it is not nominally meaningful. According to Lindberg (2010), the consequence of excess fluid intake is associated with the incidence of edema. The change in the degree of feet edema before and after treatment in the control group with an average decline value is significant at 2 mm. The difference change of edema in the experimental group and the control group is significant ($p = 0.011$). The decrease edema value after the treatment is one sign of a decline in IDWG.

The decrease in edema is due to lower ankle circumference. The differences in the size of the ankle circumference before and after treatment in the experimental groups is not significant ($p = 0.157$). Before the treatment, respondents in the experimental group do not experience edema, so the value changes decrease the size of the ankle circumference before and after treatment in the experimental group is not significantly associated with an average because it is only 0.34 cm. the differences in the size of the circumference of the ankle before and after treatment in the control group is significant ($p = 0.04$). The respondents in the control group before treatment have an average edema, so the value of different change of ankle circumference measurements before and after the treatment in the control group is significant with an average of 1.20 cm. The difference of ankle circumference changes in the treatment group and the control group is significant ($p = 0.02$). Self-management of patients on hemodialysis treatment is analyzed as process of relevant behavioral adaptation, with the underlying premise that changing behavior usually does not occur immediately (Lindberg, 2010). Respondents have to adapt to the restriction of fluid intake after undergoing hemodialysis session 12-16.

The difference in the arm muscle strength before and after treatment in the experimental group is significant. The grip strength proves to be a marker of nutritional status, muscle mass and prognosis in patients on dialysis (Anne and Noel, 2010). The difference of muscle strength in the experimental group and control group is according to the data differences nutrient intake. The experimental group has a good appetite. Morbidity and mortality in hemodialysis patients can be reduced when there is an increase in the nutritional status obtained by nutritional support. The qualitative research related to physical weakness that the physical fatigue is the main domain consisting of four themes, namely general fatigue, exhaustion due to uremia, fatigue due to sleep disturbance and fatigue due to physical energy that is not enough. The patient's ability to maintain

restrictions in applying the instructions and monitor fluid balance will help the patient to get physical health (Lopez, 2005).

The difference of upper arm circumference before and after the treatment in the experimental group is significant. The absence of water retention and triceps skin fold thickness can be useful for assessing fat and muscle and arm circumference to assess muscle mass (Anne and Noel, 2010). Diets low in protein and high in calories to eliminate the symptoms of anorexia and nausea (nausea) and uremia will cause a decrease in urea and symptoms improvement. Recent studies show that ratings of appetite can be a simple clinical tool and is useful in identifying patients at risk of death on dialysis.

Systolic pressure before hemodialysis before and after treatment in the treatment groups is not significant. This is due to an increase in systolic pressure which exceeds the recommendation K / DQOI 5 mmHg. Pradialysis excess fluid will increase vascular resistance and cardiac pumps. Patients with hypertension intradialysis will experience the increased peripheral vascular resistance value which is significant in the final hours of dialysis. If there is an increase in blood pressure, post dialysis reflects the excess volume of subclinical (Chih, 2012). Systolic pressure before hemodialysis between the treatment group and the control group is not significant. The blood pressure before hemodialysis is decreasing (25/14 mmHg) but does not reach nominal significance level. Systolic pressure after hemodialysis between the experimental group and control group is significant. The results are consistent with the results of research from Moattari (2012) that systolic blood pressure / diastolic, interdialytic body weight, hemoglobin and hematocrit levels are significantly different between groups.

Difference in the quality of life before and after the treatment both in the experimental group or the control group is significant. The fluid management affects the calculation interdialytic weight gain (IDWG).Guide book of fluid management can increase the knowledge and change attitudes of patients who undergo hemodialysis in changing their lifestyle. This result is consistent with the research result from Novian (2013) that the knowledge and attitudes affect people with hypertension to behave/act dutifully toward hypertension diet. The impact of counseling improves the health and quality of life of ESRD patients (Thomas et.al, 2009). Monitoring of fluid balance is conducted through recording the income and expenditure of fluids and weight. Fluid intake includes the type and amount of food or liquid. The fluid discharge includes the amount of urine, vomiting and diarrhea. Patients fill out diaries of fatherly monitor fluid balance every day. Diary helps patients to solve problems and to make decisions and act in response to the thirst response. Patients follow the instructions maintain fluid balance which can help maintain IDWG 2.5% to 3.5% weight of dried or not exceed 5% of dry weight. Quality of life between the treatment group and control group is not significant ($p = 0.074$). However the quality of life after the treatment between the experimental and control groups is significant ($p = 0.023$). The improved quality of life of the experimental group is higher (25.97 points) from the control group (15.94 points). There are significant differences between the experimental and control groups after the treatment in a score of self-efficacy, stress reduction, and decision-making, in addition to the overall quality of life and all dimensions included in the quality of life based on this questionnaire. In addition to systolic pressure / diastolic, interdialytic body weight, hemoglobin and hematocrit levels are significantly different between groups (Moattari, 2012).

Conclusion

Physical indicators of the quality of life of patients undergoing hemodialysis treatment are better in the experimental group than the control group. The physical indicators of quality of life of upper arm circumference and muscle strength of the patients in the experimental group are also higher. However, blood pressure before and after hemodialysis, IDWG and ankle circumference in the experimental group are lower.

There are significant differences in indicators of arm muscle strength, upper arm circumference, systolic pressure after hemodialysis and before and after treatment

in the treatment group. But there are physical indicators with no difference in the treatment group such as IDWG, ankle circumference, edema, and systolic pressure before hemodialysis, diastolic pressure before hemodialysis and after hemodialysis diastolic pressure before and after the treatment.

The control group does not experience any difference in physical indicators of IDWG, arm muscle strength, upper arm circumference, edema, systolic and diastolic pressure before hemodialysis, systolic and diastolic pressure after hemodialysis, before and after treatment. However there are some respondents experiencing a significant difference in the control group including in the indicators of ankle circumference and edema before and after treatment.

The differences between the experimental group and control group are not significant indicators, including changes in systolic pressure before hemodialysis, diastolic pressure before hemodialysis, diastolic pressure after hemodialysis, IDWG, ankle circumference and arm muscle strength. And the significant change differences between the experimental group and control group include systolic pressure after hemodialysis, edema and upper arm circumference,

Hemodialysis patients require nursing assistance for counseling about the disease, lifestyle changes, the process of acceptance of the disease and the reward for strengthening the psychological as well as patient compliance. Therefore, the nursing field hospital could establish counseling team consisting of medical, nursing, nutritionists and psychologists. Nursing care in hemodialysis patients requires a model of independent monitoring of fluid intake and diet restrictions to improve the quality of life.

Research on fluid management can be developed further to improve the quality of life of hemodialysis patients with a larger number of samples and a period longer than two months.

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