

Fluid Management Correlation with the Quality of Life in Hemodialysis Patients in Medan

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Abstract— Purpose. Patients with chronic kidney failure who undergo hemodialysis therapy experience changes in all aspects of their lives, particularly in the limitation of fluid in order to be able to adapt so that they can improve their life qualities. Methods. This study aims to identify and explain the relationship of fluid management with quality of life for hemodialysis patients in hospitals. The design of the research was descriptive correlation. The instruments were questionnaires of fluid management, and life quality. There were 92 respondents, taken by using purposive sampling technique. Results. The results showed that on average, the respondents still had quite high fluid excess which mean score, median, and deviation standard of fluid management were 78.07, 77.50, and 9.50 respectively. The qualities of their lives decreased significantly with mean 59.61 (SD 21.32). The analysis of research results used Pearson testing (bivariate analysis). The results of correlation analysis showed that there was not any correlation between fluid management and hemodialysis patients' life qualities ($p= 0.253$ and $r= -0.120$). Patients with chronic renal failure undergoing hemodialysis field of weight gain interdialysis more than 3.9% causes them to be at a risk of developing complications of fluid overload so that decreased quality of life. Conclusion. The nurse at the hemodialysis unit are expected to increase the frequency of hemodialysis three times a week, giving education about fluid intake restrictions to the provision of fluid restriction pocket book as well as assessing the quality of life for hemodialysis patients on an ongoing basis.

Keywords— Fluid Management, Hemodialysis Patients, Life Qualities

I. INTRODUCTION

Chronic renal failure is kidney damage that causes the kidneys can not remove toxins and waste products from the blood, characterized by protein in the urine and reduced glomerular filtration rate, lasting more than 3 months Black & Hawks [1]. Data in Indonesian Renal Registry [4] Indonesia is among countries with the level of patients with kidney failure are quite high. The number of new patients in 2007 to 2012 reached 19 621 people and the 9161 active patients. Dr H.Adam Malik Hospital Medan in February 2014 chronic renal failure patients undergoing routine hemodialysis as

many as 170 patients, DR. Pirngadi Hospital Medan in March 2014 recorded 136 patients undergoing routine hemodialysis, while at the Kidney and Hypertension Specialist Clinic Rasyida Medan in February 2014 as many as 135 people Fitri, Setiawan & Siregar [10]

Patients with chronic renal failure requiring renal replacement therapy that is hemodialysis. This therapy is one of the renal replacement therapy that can prevent death but not heal or recover illness. Patients will continue to face problems and treatment-related complications. Many of the patients undergoing hemodialysis in the treatment regimen is complex, difficult to manage fluid resulting in high risk of mortality as well as increased health care costs Cristova [2].

According Tovazzi & Mazzoni [5] patients who have difficulty managing the liquid does not get an understanding of how the strategies that can help them in a fluid restriction. Research of Kugler et. Al [6], as many as 81.4% of patients have difficulty following a diet and as much as 74.6% of patients experience difficulty in fluid restriction. Research of John [9], hemodialysis patients often fail to follow the diet and manage fluids, thereby reducing the effectiveness of care and led to the development of disease is unpredictable and likely to occur complications.

Hemodialysis patients who do not limit fluid intake causes a buildup of fluid in the body and will cause edema around the body such as hands, feet and face. Fluid overload problems experienced by hemodialysis patients not only from excessive fluid intake but also can be derived from foods that contain a high-water content, therefore the overall

diet of patients undergoing hemodialysis should be controlled Welch, Perkins, Johnson, & Kraus [17].

Weight gain interdialysis is an increase in the volume of fluid that is manifested by an increase in body weight as a basis to determine the amount of fluid intake during the interdialysis period Kugler, Vlaminck, Haverich & Bart [6]. The research results by Mailani, Setiawan and Siregar [10] in DR. Pirngadi Hospital and Haji Adam Malik Hospital states of 194 patients found 88 respondents experienced interdialysis weight gain severe category ($> 3.9\%$), 46 respondents moderate category (3 to 3.9%), 60 respondents light category ($<3\%$). Besides a general overview of the value of quality of life for hemodialysis patients in the Mailani study also decreased mainly in the domain limitations due to physical problems.

Handayani [11] Pirngadi Hospital field contained about 15% of patients with scheduled hemodialysis ahead of the schedule should be, 20% came to the state of breathless, 30% are malnourished, 40% had complications buildup of excess fluid, 50% experienced an increase in weight body than it should be. Fluid intake is also generally located in more categories.

Kring & Crame [7] said that more than 90% of hemodialysis patients experiencing fatigue. Hemodialysis patients in maintaining their health should be able to adapt as changes that occur and in his research, the adaptations made by the participants is to limit activity and limit fluid intake Small.

The above conditions have an impact and influence as well as lowering the quality of life of hemodialysis patients, causing a change in the ability to perform the functions of daily life and require an increase in the complexity of patient management. Restriction of fluid intake in hemodialysis patients often eliminate the patients and families spirit of life and can affect the social life, physical, psychological, economic, environmental and spiritual of the patient. Hemodialysis patients require continuous care. Daily care is the responsibility of the client. Dialysis patients have a natural ability in daily self-care, and nurses should focus on this ability Orem, in Simmons [13].

II. RESEARCH METHODOLOGY

The study is quantitative with correlation descriptive design with the intention to see the fluid management correlation with the quality of life for hemodialysis patients in Dr. Pirngadi Hospital Medan. The number of respondents in this study as many as 92 people. The questionnaire in this study consisted of three parts: a questionnaire on demographic data and fluid management and quality of life.

Analysis of the data used for this study is a statistical analysis for a single variable (univariate) using descriptive statistics and two types of variables (bivariate) using Pearson correlation test.

III. RESEARCH RESULT

TABLE I.
FLUID MANAGEMENT DISTRIBUTION OF HEMODIALYSIS PATIENTS IN THE DR. PIRNGADI HOSPITAL MEDAN (N=92)

Variable	Mean	Median	Standard deviation (SD)	Min-Maks
Fluid Management	78,07	77,50	9,50	56-106
Interdialysis weight gain (%)	4,70	4,30	3,10	0-15,0
Interdialysis weight gain (Kg)	2,62	2,30	1,72	0-9,0

In table 1 we can see that the average score fluid management of the respondents who undergo hemodialysis are 78.07, 77.50 median, standard deviation of 9.50 means that the average respondent still had excess fluid is high enough. The average interdialysis weight gain in respondents who undergo hemodialysis in percentage is 4.70, median 4.30, standard deviation of 3.10 means that the respondent average to gain weight interdialysis was severe category, while interdialysis weight gain with Kilogram (Kg) units gained an average of 2.62 kg, 2.30 kg median, standard deviation of 1.72 means that the respondent average to gain weight interdialysis was high enough from the dry weight.

TABLE II
**DISTRIBUTION OF QUALITY OF LIFE IN HEMODIALYSIS PATIENTS IN DR.
 PIRNGADI HOSPITAL MEDAN**

Domain quality of life	Mean	SD	Min-Maks
Symptoms / problems that accompany	69,96	14,35	29-94
Effect of kidney disease	60,80	20,13	3-94
The burden of kidney disease	37,50	22,75	0-100
Job status	51,09	12,79	0-100
Cognitive function	73,12	21,68	0-100
The quality of social interaction	82,90	15,25	33-100
Sexual function	78,01	29,32	0-100
Sleep	55,14	9,67	25-73
Social support	81,34	22,49	0-100
Support of dialysis staff	97,01	9,69	50-100
Patient satisfaction	52,38	11,84	17-100
Physical function	33,18	24,52	0-100
Limitations due to physical problems	18,21	32,33	0-100
Pain	67,28	34,89	0-100
General health perception	50,92	23,35	0-95
Emotional wellbeing	76,22	19,54	8-100
Limitations due to emotional problems	17,39	31,44	0-100
Social function	65,08	31,47	0-100
Energy / fatigue	65,16	17,57	20-100
Quality of life in general	59,61	21,32	

Table 2. The results showed a general overview of the value of the quality of life of patients with chronic kidney disease who undergo hemodialysis experienced a significant decline in the average value of 59.61 and a standard deviation (SD) 21.32. The lowest average value is limitations due to emotional problems, namely 17.39 (SD 31.44) and the limitations due to physical problems, namely 18.21 (SD 32.33).

Fluid management correlation with the quality of life for hemodialysis patients in DR. Pirngadi Hospital revealed p value 0.253 (> 0.05), which showed no association between fluid management with quality of life (Ho accepted).

TABLE III
FLUID MANAGEMENT CORRELATION WITH QUALITY OF LIFE IN HEMODIALYSIS PATIENTS IN DR. PIRNGADI HOSPITAL MEDAN (N = 92)

Correlation	r	P
Fluid management – Quality of life	-0,120	0,253

IV. DISCUSSION

The results showed that the management of fluids of respondents undergoing hemodialysis majority experienced excess fluid, it is supported by the interdialysis weight gain of the respondents > 3.9% of dry weight as much as 56.5% and > 2 to 9 kg of dry weight as much as 54.4%. In accordance with the research results of Istianti [14], states that there is a significant correlation between fluid intake and weight gain as more fluid intake, the more increased weight between two time dialysis and the factors that most contribute to the occurrence of weight gain between the two time dialysis is fluid input while reducing complications from chronic kidney disease interdialysis weight should not be > 3.5 to 4 % of dry weight Lopez-Gomez, [15] or no more than 3% of the dry weight Smeltzer & Bare [16].

The majority of respondents in this study say that they drink intake is limited to approximately 500-600 ml a day and there are some respondents justified only drink about 250 ml per day. The majority of respondents explained that themselves impaired in elimination of urine which have been unable to secrete urine or anuria. The recommended daily fluid intake in patients undergoing hemodialysis is restricted as much as insensible water losses, plus the amount of urine Smeltzer & Bare [16].

Steps of respondents in performing self-care to manage restriction of fluid intake in this study it was found that a lot is to drink with warm water, drinking little sips until they run out, estimate the amount of liquids that can be taken in a day, adjusting the amount of liquid based on the urine to leak, take the medicine simultaneously with each meal and keep the amount of fluid specified. Besides steps of self-care that much done to reduce respondents salt intake are using traditional seasoning during cooking, reduce the use of salt when cooking and avoid instant meals. While the

research results of Cristovao [2] was to avoid sun exposure, avoid eating spicy food, avoid foods that contain lots of water, avoid sweets and avoid exceeding the allowed number of daily fluid.

Abuelo suggest that patients who are elderly decreased thirst so fluid intake decreases causing weight gain.

The results showed a general overview of the value of quality of life for hemodialysis patients had a significant reduction. Almost all respondents complained of having limitations due to emotional and physical problems. Limitations due to emotional problems include how emotional problems interfere with patients in daily activities, such as less rigorous than before. According to research of Harahap, Sarumpaet & Tarigan [3] in DR. Pirngadi Hospital Medan says the majority of hemodialysis respondents has depressed. Limitations due to physical problems include how much physical problems experienced by patients interfere with the work and daily activities, such as shortening the time to work or activities, the limitations and difficulties in activities.

Impact of kidney disease is often felt by patients, it is also felt by the majority of respondents in this study. The impact of this disease include the extent of kidney disease patients felt very disturbing in life, the amount of time spent, frustration against the disease, and the feeling of being a burden to family. In this study, the majority of respondents also experience sleep disorders in which respondents are less likely to get enough sleep.

Effects of kidney disease is a consequence suffered from renal disease and often distressing for the patient. In this study, the effects of kidney disease, the majority of respondents feel very annoyed with fluid restriction, dietary restrictions, the ability to work around the house, the ability to travel, the reliance on health workers, the worry and stress of the illness, sexual life, and appearance Hays et al., [12]. Physical function of most respondents were also disrupted. These aspects include the ability for activities such as walking, climbing stairs, bending, lifting, exercise and strenuous activity capability. In this study the majority of respondents limited all these activities. Most respondents also perceive poor general health condition, this aspect includes a patient's view of

the current health condition, the prediction in the future, and resistance to disease.

The majority of respondents in this study is no longer working. The majority of respondents felt that their income has not been able to meet their daily needs associated with the increased demand and cost of living.

Domain respondent satisfaction regarding care received in this study the majority of respondents reported being very satisfied with the service received while undergoing hemodialysis for both nurses and fellow patients already feel like brothers and family. Domain support from the dialysis staff and the quality of social interactions in this study had the highest scores.

Almost all respondents said it was satisfied with the services of nurses in hemodialysis units and some also said changes in the quality of social interaction such as irritability, difficulty concentrating and tend to be forgetful. The nurse at the hemodialysis unit of DR. Pirngadi Hospital Medan majority are trained and experts nurses and have a training certificate dialysis. Social support in the study also received the highest score.

A. *Fluid Management Correlation with Quality of Life of Hemodialysis Patients*

From this research, it is known that respondents' fluid management experienced excess fluid. While the general description of the value of quality of life for hemodialysis patients experienced a significant decline, but the results of the bivariate analysis of this study showed no correlation between quality of life and fluid management of hemodialysis patients. Patients with chronic renal failure undergoing hemodialysis who have good fluid management is able to control the restriction of fluid intake and low weight gain interdialysis so have a good quality of life.

Excessive weight gain will cause various problems and will have an impactn the decline in the quality of life of patients undergoing hemodialysis and thus may cause a change in the ability to transform and implement the functions of daily life Young [8]. Psychologically physical limitations experienced by the patient will cause stress and depression worsened with body image

disorders experienced by patients and also affects the social life of patients Welch et al., [17].

Research results of Lopez-Gomes [15] states that to reduce complications from chronic kidney the interdialysis patient's weight should not be more than 3.5-4% of the dry weight while the results of this study, the data of interdialysis weight gain > 3.9%. Of the total number of respondents was recorded approximately 52 people have additions > 3.9% and of which there are 40 people who experience weight gain \geq 5% of the dry weight. All respondents undergoing hemodialysis therapy two times a week between 4-5 hours in one therapy which means the body has to bear the excess fluid interdialysis Indonesia Renal Registry [4].

Based on the research that has been obtained by researchers assume that the majority of patients with chronic renal failure undergoing hemodialysis therapy is probably already experiencing or at risk of complications due to excess fluid because the majority of respondents experienced interdialysis weight gain too high and looks there are some respondents who experienced edema of the whole body, ascites, impaired cardiovascular and respiratory systems while undergoing hemodialysis and should be put on oxygen with a semifowler lying position. Data on how many respondents had experienced complications in this study were not studied.

V. CONCLUSION

Patients with chronic renal failure undergoing hemodialysis therapy have difficulty in restricting fluid intake as evidenced by their weight gain interdialysis severe category. Such conditions can cause them to be at a risk for various complications of fluid overload so that decreased in quality of life.

VI. SUGGESTION

Nurses need to be educated or counseling about restriction of fluid intake and provides pocket book about fluid restriction. Assessing the quality of life for hemodialysis patients on an ongoing basis.

REFERENCES

- [1] Black, Joyce M., & Jane Hokanson Hawks. (2009). Medical Surgical Nursing Clinical Management for Positive Outcome Seventh Edition. China : Elsevier Inc.
- [2] Cristovao jesus de amaral filipe antonio, (2015), Fluid and dietary restriction's efficacy on chronic kidney disease patients in hemodialysis
- [3] Harahap, Minta Ito Melinda, Sori Muda Sarumpaet & Mula Tarigan (2015)., Hubungan Stress, Depresi dan Dukungan Sosial dengan Kepatuhan Pembatasan Asupan Nutrisi dan Cairan pada Pasien Gagal Ginjal Kronik.
- [4] Indonesian Renal Registry. (2012). 4th Report Of Indonesian Renal Registry. IRR: 18-20.
- [5] Tovazzi, M.E., & Mazzoni, V. (2012). Personal Paths of Fluid Retriction in Patient on Hemodialysis, Nephrology Nursing Journal, 39 (3), 207-215.
- [6] Kugler, C., Vlaminck, H., Haverich, A., & Maes, Bart. (2005). *Nonadherence With Diet and Fluid Restrictions Among Adults Having Hemodialysis*. Journal of Nursing Scholarship, 37:1. 24-29.
- [7] Kring L.Doria.,&Patricia B.Crame (2009). Factor affecting quality of life in persons on hemodialysis
- [8] Young, S. (2009). Rethinking and integrating nephrology palliative care: A nephrology nursing perspective. The Cannt Journal, (19). Diambil tanggal 2 November 2013 dari [208](http://proquest.umi.com/pqdweb?index=John Ansby et. All, (2012), The relationship between self efficacy and fluid and dietary compliance in hemodialysis patients.
[9] Mailani Fitri, Setiawan & Cholina Trisa Siregar, (2014). Hubungan penambahan berat badan interdialisis dengan kualitas hidup pasien penyakit ginjal kronik yang menjalani hemodialisis.
[10] Handayani Widya. (2011). Pengaruh Komunikasi Terapeutik terhadap Pengetahuan dan Kepatuhan dalam Menjalankan Terapi Diet Pada Pasien Hemodialisa di RSUD DR. Pirngadi Medan.
[11] Hays R.D., Kalllich J.D., Mapes D.L., Coons S.J., Amin N., Carter W.B., & Kamberg C. (1997). Kidney disease quality of life short form (KDQOL-SFtm), version 1.3: A manual for use and scoring. Santa Monica, CA: RAND Health.
[12] Simmons, L. (2009). Dorthea Orem's Self Care Theory as Related to Nursing Practice in Haemodialysis. Nephrology Journal Nursing. Vol 36. No. 4
[13] Istianti, P. Y. (2009), Faktor-faktor yang berkontribusi terhadap <i>interdialitic weight gains (IDWG)</i> pada pasien dengan <i>Chronic kidney diseases (CKD)</i> di unit hemodialisa Rumah Sakit. PKU Muhammadiyah Yogyakarta.
[14] Lopez-Gomez, J. M.. (2005). Interdialytic weight gain as marker of blood pressure, nutrition, and survival in hemodialysis patients. <i>International Society of Nephrolog</i>, 67(93), S63-S68.
[15] Smeltzer, S.C., Bare, B.G., Hinkle, J.L., & Cheever, K.H. (2010). Textbook of Medical surgical nursing 12 ed. Philadelphia : Lippincott Williams & Wilkins
[16] Welch, J., L., Perkins, S., M., Johnson, C., S., & Kraus. (2006). Patterns of interdialytic weight gain during the first year of hemodialysis. <i>Nephrology Nursing Jurnal</i>, 33 (5), 493-498.

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