

The Effect of Nutrition Counseling on Protein Intake on Patients with Chronic Kidney Failure who Undergo Hemodialization in Cut Mutia Hospital, Aceh Utara

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ABSTRACT

Patients with kidney failure in outpatient hemodialysis rooms often experience malnutrition and have decreased quality of life. Moreover, they frequently have incorrect knowledge about nutritional intake, especially protein. One way to deal with nutritional problems in kidney patients in outpatient hemodialysis rooms is nutrition counseling to provide knowledge about food handling/control. This counseling aims to enable patients to change their nutritional intake, especially protein. Thus, their nutritional and health status gets better and improved. This study aims to determine the effect of nutritional counseling on protein intake in patients with chronic kidney failure at the Cut Mutia Hospital, Aceh Utara. This research employed a descriptive-analytical method with a quasi-experimental design and a one-group pretest-posttest design. The research sample was 28 chronic kidney failure patients in outpatient hemodialysis rooms at RSUD Cut Mutia Aceh Utara. They were divided into two groups: 14 patients in a treatment group and 14 patients in a control group. The patients received nutrition counseling for 30 minutes in the pre-test and post-test. The data were analyzed using a statistical test of the dependent T-test. The average protein intake in the treatment group before and after the nutritional counseling is 40.60 grams, and the average protein intake after the control group is 52.91 grams. The nutritional counseling significantly affects the protein intake of patients with chronic kidney failure in outpatient hemodialysis rooms at Cut Mutia Hospital, Aceh Utara ($p = 0.00$).

Keywords: Chronic kidney failure, nutritional counseling, protein intake

Introduction

Chronic kidney disease is caused by continuous and irreversible damage to kidney functions so that the body cannot maintain metabolism, especially to maintain fluid and electrolyte balance, which ultimately leads to uremia (Bare, 2010). Chronic renal failure is a kidney's failure to remove toxins and waste products from the blood; as a result, protein is found in the urine and the obtained glomerular filtration rate decreases (Hawks, 2009). Patients with chronic kidney disease or end-stage kidney disease experience progressive and irreversible

destruction of kidney structures; as a result, their body's ability to maintain metabolic balance and electrolytes fails, and they suffer from uremia (Anggraini, 2016).

The number of patients with chronic kidney failure increases every year. Most of the increase occurs in developing countries, such as Indonesia. Global Burden of Disease from the Ministry of Health reports that the number of patients with chronic kidney failure in 2010 increased. Indonesia ranks 18th in the world after America, Asia, and Mexico because approximately 200,000 Indonesians aged 25-50 years suffer from chronic kidney failure (Kemenkes RI, 2013). Indonesia is predicted to rank 6th in 2025. World Health Organization (WHO) releases that the prevalence of chronic kidney failure in Indonesia in 2013 was 70,000 people, and the number is predicted to reach 21 million people in 2029 (WHO, 2013).

Furthermore, Riskesdas data in 2018 show that the prevalence of chronic kidney failure in Indonesia has increased significantly over the last five years and increased from 3.8% in 2013 to 41.4% in 2018. Meanwhile, the incidence of chronic kidney failure in Aceh is in the top two after the province of Central Sulawesi. The prevalence of chronic kidney failure in Aceh increased from 0.25% in 2013 to 0.49% in 2018. Therefore, it is predicted that the number of patients with chronic kidney failure in Indonesia reaches more than 30 million people or 19.33% of the entire population of Indonesia; many of them undergo dialysis therapy (Center for Data and Information of the Indonesian Ministry of Health, 2018). The data from outpatient visits for chronic kidney failure patients denote that 40 patients underwent dialysis therapy at Cut Mutia Hospital from February to August 2020 (Medical Record Data at Cut Mutia Hospital, 2021).

The risk factors for protein intake in patients with chronic kidney failure are divided into two. The first factors are unchangeable and include gender, age, and family support. The second factors are changeable and include urea levels, creatinine levels, and Hb levels. Meanwhile, the risk factor is food that contains a lot of protein and fat; consuming foods with enough protein and fat can reduce the risk of developing kidney failure. (Wagustina, 2019).

Protein intake can significantly determine chronic kidney failure because protein has enormous functions in the body. Low protein intake can be affected by low protein consumption in the diet; such a condition can weaken immunity. Besides calorie intake, protein intake significantly affects the nutritional management of patients with chronic kidney failure because the symptoms of the uremic syndrome are caused by the accumulation of body protein catabolism (Susetyowati, 2017).

Adequate protein intake of 1-1.2 g/kg BW/day could maintain nitrogen balance and protein loss during the dialysis. At least 50% of protein intake comes from high biological values of proteins, which are more complete with essential acids. This protein source is usually from the animal group, such as eggs, meat, chicken, fish, and milk (Susetyowati, 2017).

Method

This research employed an analytical descriptive method with a quasi-experimental design with a one-group pretest-posttest design to explore the effect of nutritional counseling on protein intake in kidney failure patients with outpatient hemodialysis at Cut Mutia Hospital,

Aceh Utara. The population of this study was all patients with chronic renal failure in outpatient hemodialysis rooms at Cut Mutia Hospital, Aceh Utara. The total sample was 28 patients with chronic kidney failure in the outpatient hemodialysis rooms. They were divided into two groups: 14 patients were partly treated with counseling, and 14 patients were partly controlled without counseling.

The primary data were data of samples' identity, including name, age, gender, education, and occupation. These data were collected by directly interviewing respondents using a questionnaire. Data of chronic kidney failure with hemodialysis included measurement results obtained from the patients' medical record book, composed by Cut Mutia Hospital, Aceh Utara. Protein intake data include measurements by an interview method using a 24-hour recall. Meanwhile, the secondary data comprised the general description of the research location in the outpatient ward at RSUD Cut Mutia Aceh Utara. These data were obtained by browsing documents or hospital profiles.

Afterward, the data were processed and analyzed using computerized systems, namely Microsoft Office Excel 2007 software and Statistical Program for Social Science (SPSS) version 26 for windows. The obtained data were tabulated and analyzed descriptively and inferentially. Descriptive statistics were carried out including the frequency distribution. Finally, the inferential statistics performed in this study included the dependent T-test.

Results

This research has revealed the effect of nutritional counseling on the protein intake of patients with chronic kidney failure in outpatient hemodialysis rooms at the Cut Mutai Hospital, Aceh Utara. The n body mass index (BMI) of the research samples in the treatment and control groups is presented in Table 1.

Table 1. The Distribution of Body Mass Index of Research Samples in Treatment and Control Groups

IMT	With Treatment		Without Treatment	
	n	%	n	%
17.0-18.5 (Underweight)	1	25.0	3	75.0
>18.5-20.0 (Normal)	9	50.0	9	50.0
>25.0-27.0 (Overweight)	1	33.3	2	66.7
>27.0 (Obesity)	3	100.0	-	0
Total	14	100	14	100

Table 1 shows that the research samples mostly have the highest body mass index value: nine people (50.0%) in the normal treatment group and the control group, respectively.

The univariate analysis was conducted to describe the characteristics of each variable, namely the variable protein intake in patients with chronic kidney failure in outpatient

hemodialysis at Cut Mutia Hospital, Aceh Utara. The average protein intake of the respondents before and after receiving the counseling is presented in Table 2.

Table 2. Average Protein Intake Required for Patients before Counseling

Variables	N	Minimum	Maximum	Mean	Median	SD
With Treatment	14	38.0	51.3	45.236	43.850	4.3075
Without Treatment	14	24.8	44.3	35.979	36.400	6.7364

Table 3. Average Protein Intake Needed by Patients after Receiving Counseling

Variables	N	Minimum	Maximum	Mean	Median	SD
With Treatment	14	52.3	41.0	57.593	57.950	2.5844
Without Treatment	14	60.8	54.5	48.229	48.200	4.3703

Tables 2 and 3 present that the average protein intake of the treatment group before receiving counseling is 45.2 grams, and that of the control group is 35.9 grams. Meanwhile, the protein intake of the treatment group after receiving counseling is 57.5 grams, and that of the control group is 48.2 grams. These results show an increase in protein intake by 12.3 grams.

This study conducted a bivariate analysis to determine the effect of nutritional counseling on the protein intake of patients with chronic kidney failure in outpatient hemodialysis rooms at Cut Mutia Hospital, Aceh Utara. Afterward, the T-dependent test was performed at 95% CI by comparing the average protein intake before and after receiving counseling.

Table 4. The Effect of Nutrition Counseling on Protein Intake of the Treatment and Control Groups

Variables	n	Mean ± SD	T	P-Values
With Treatment	14	52.911 ± 5.9284	10.861	0.00
Without Treatment	14	40.607 ± 7.2801	10.861	0.00

The T-dependent Test between the treatment group who receives nutritional counseling, and the control group who does not receive nutritional counseling has discovered a p-value of 0.00 (<0.005). This result concludes that there is a significant effect on a protein intake of the treatment and control groups. In other words, nutritional counseling significantly influences the protein intake of patients with chronic kidney failure in outpatient hemodialysis rooms at Cut Mutia Hospital, Aceh Utara.

Discussion

Tables 2 and 3 show that the average protein intake of patients with chronic kidney failure before receiving the counseling is 48.22 grams, and their intake receiving the counseling

is 57.59 grams. This result shows that their protein intake increases by 12.3 grams. This increase occurs because the sample has understood the purpose of dieting, protein needs, dietary regulation for patients with chronic kidney failure, and protein sources of food. This condition denotes a change in eating patterns or eating habits from previously not consuming food sources of vegetable protein to consuming ones. In contrast, the control group who do not receive nutritional counseling shows an average protein intake of 35.97 grams; this score is lower than 48.22 grams.

Chronic kidney disease is a pathophysiological process with diverse etiologies, which progressively declines kidney functions and generally ends with kidney failure. Furthermore, kidney failure is a clinical condition characterized by an irreversible decline in kidney functions; this disease requires permanent renal replacement therapy in the form of dialysis or kidney transplantation (Bare, 2001).

According to Kresnawan (2005), hemodialysis procedures can cause nutrient loss, such as protein. Therefore, patients' daily protein intake should be partially increased to compensate for protein loss, namely 1-1.2 grams/kg/bw/day. Moreover, 50% of protein intake should be of high biological value (animal protein) and another 50% is from vegetable protein.

The results of the three-time-24-hour-recall for patients with chronic kidney failure show that on average, they consume food from animal protein sources three times a day but consumed less food from plant protein sources, such as tempeh, tofu, and nuts. This occurs because patients with chronic kidney failure do not understand that protein requirements and never receive nutritional counseling (Irwan, 2016).

Table 4 presents the results of the statistical test using the paired T-test on the treatment group who receives nutritional counseling. The result shows that the p-value is 0.000 ($p < 0.05$). This result shows that the H_a is accepted, and the nutritional counseling influences the protein intake of patients with chronic kidney failure.

The T-dependent test has revealed a p-value of 0.00 (< 0.05) between the treatment group who receives nutrition counseling and the control group who does not receive nutritional counseling. This result concludes nutritional counseling significantly increases the protein intake of patients with chronic kidney failure.

The results of this study are in line with those of Sebastianus (2017) who has discovered the relationship between protein intake counseling and nutritional counseling of patients with chronic kidney failure. Nutritional counseling should be conducted to appropriately regulate protein intake for patients. Finally, Sebastianus (2017) has proven a tendency to influence nutritional counseling and protein intake.

Individuals' or families' nutrition knowledge and ability can be increased through nutritional counseling. Nutrition counseling is an approach used in nutritional care to help individuals and families understand themselves and their problems. The nutritional counseling is expected to enable individuals and families to overcome their nutritional problems, change eating patterns or eating habits, and solve problems in nutrition by practicing healthy living habits (Winaryati, 2017).

Nutritional counseling has several benefits; for example, it helps clients identify health and nutritional problems, understand the causes of the problems, choose the most appropriate problem-solving methods for them, and undergo a healing process of the disease by improving their nutrition (Corelia, 2016). Meanwhile, the use of leaflets aims to facilitate clients to understand daily food needs, daily food distribution, daily food menus, goals, dietary requirements, recommended food ingredients, and limited food to consume (Cornelia, 2016).

Conclusion

Before receiving the nutritional counseling, the average protein intake of the treatment group is 45.23 grams, and that of the control group is 35.97 grams. Meanwhile, after receiving the nutritional counseling, the average protein intake of the treatment group is 57.59 grams and that of the control group is 48.22 grams. Finally, this study has discovered that nutritional counseling influences the protein intake of patients with chronic renal failure in hemodialysis rooms.

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