INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE
VOLUME 1 TAHUN 2023, ISSN 3032-4408 (Online)
https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs

Effectiveness of Nutritional Counseling on Nutritional Knowledge and Protein Energy Intake of Chronic Kidney Failure Patients with Hemodialysis at RSUP Prof. Dr. I.G.N.G. Ngoerah

I.G.A. Mas Inten Pertiwi [1*], Ni Komang Wiardani, [1], Pande Putu Sri Sugiani.[1]

[1] Department of Nutrition, Health Polytechnic, Ministry of Health, Denpasar

*Corresponding author: intenpertiwi14@gmail.com

Article history
Posted : 2023-10-27
Reviewed : 2023-10-23
Received : 2023-10-09

ABSTRACT

Background: Chronic Kidney Failure is a non-communicable disease characterized by failure of kidney function. Hemodialysis or dialysis is a therapy using a dialysis machine which functions to maintain the patient's life and well-being until kidney function is restored. The general aim of this research is to determine the effectiveness of nutritional counseling on nutritional knowledge and protein energy intake of chronic kidney patients on hemodialysis at RSUP Prof. Dr. I.G.N.G. Ngoerah. **Methods**: This type of research is quasi experimental with a one group pre-test-post-test design type. The number of samples in this study were 22 people aged 40-60 years. Sampling was taken using a simple random sampling technique. Providing intervention in the form of nutritional counseling was carried out 2 times within a period of 1 month. **Result**s: Based on the average level of nutritional knowledge before nutritional counseling, 68% of the sample had insufficient nutritional knowledge and experienced an increase in the average value after being given nutritional counseling. The patient's energy intake was 73% included in the category of insufficient intake while the patient's protein intake was 77% included in the insufficient intake after given nutritional counseling. Nutritional counseling is effective in increasing nutritional knowledge (p value 0.001) but not effective in increasing energy intake (p value 0.175) and protein (p value 0.254) in chronic kidney patients with hemodialysis therapy.

Keywords: Nutritional Counseling, Nutritional Knowledge, Protein Energy Intake, Chronic Kidney Failure With Hemodialysis

INTRODUCTION

Chronic Kidney Failure is a non-communicable disease (NCD), which currently continues to increase in number both in the world and in Indonesia, in line with changes in people's lifestyles and eating patterns. The Global Burden of Disease Study estimates approximately 1.4 million deaths globally from CKD in 2019, a 20% increase from 2010, one of the largest increases among the leading causes of death (Shrestha et al., 2021). In Indonesia, based on 2018 Basic Health Research (Riskesdas) data, the prevalence of CKD increased to 0.38 percent (Kementerian Kesehatan RI, 2017). Hemodialysis patients who have insufficient food intake, especially energy and protein intake, are consistently associated with a risk of decreased health and death in various different populations (Astuti & Septriana, 2018).

A person's level of nutritional knowledge influences attitudes and behavior in choosing food which will ultimately influence the patient's nutritional condition, especially compliance with nutritional principles and meal planning (Rustami, 2018). Efforts made to increase knowledge and compliance of CKD patients undergoing HD in following a diet are through nutritional counseling. This is supported by research which states that there is a significant change in knowledge and dietary compliance regarding the hemodialysis diet before and after counseling (Marbun et al., 2021)

Central General Hospital (RSUP) Prof. Dr. I.G.N.G Ngoerah is a type A hospital belonging to the Ministry of Health located in Bali. As a referral hospital for Bali and Nusa Tenggara. This hospital has an outpatient installation consisting of three patient service areas, one of which is the hemodialysis outpatient installation. Nutrition counseling is one of the services provided by nutritionists to patients at RSUP Prof. Dr. I.G.N.G. Striving to overcome nutritional problems.

METHOD

The place for carrying out the research is the hemodialysis clinic at Prof Ngurah Hospital. The time used for the research is 3 months from October to December 2022. This type of research is experimental research, namely quasi-experimental with a one group pretest-posttest population design. In this research, patients with chronic kidney failure There were 22 people undergoing hemodialysis or HD therapy at Prof Ngurah Hospital in the study using a sampling technique, namely simple random sampling, data collection using the interview method with a sample identity form and a 1 x 24 hour food recall form. Univariate data analysis is presented descriptively including data on categories of age, gender, education, employment and nutritional status of respondents. Bivariate data analysis seeks or determines differences between two or more variables using the paired t-test if the data is normally distributed and using the Wilcoxon signed ranks test if data is not normally distributed

RESULTS

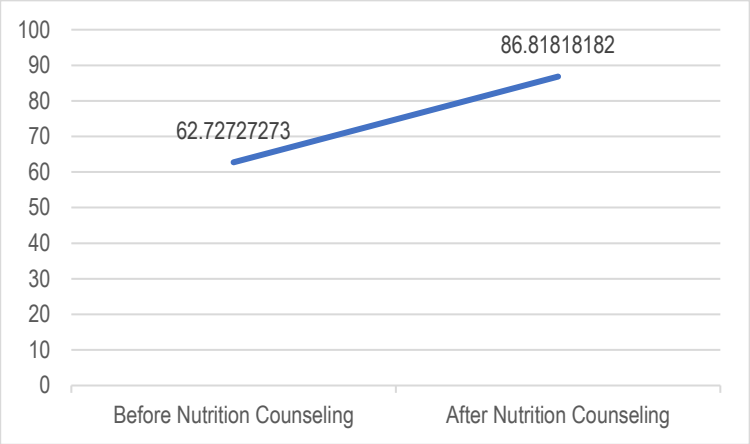
The samples in this study were 22 samples of chronic kidney failure patients on hemodialysis who underwent outpatient control at the Hemodialysis Polyclinic, RSUP Prof. Dr. I.G.N.G. Ngoerah. The average age in the intervention group was 54 years. The largest distribution of samples based on age in the intervention group was in the 50-59 year age range, namely 63.63%. Sample characteristics

based on gender of the 22 samples, 14 samples (63.63%) were male and 8 samples (36.36%) were female. The dominating sample education was 11 people (50%) graduated from high school, 5 people had graduated from elementary school (22.7%), 3 people had graduated from diploma/college (13.63%), 2 people had graduated from junior high school (9.09%) and had not graduated. Elementary school / Not attending school as many as 1 person (4.54%). Sample employment shows that 18 people (81.81%) of the sample are not working, 3 people (13.63%) are entrepreneurs and 1 person (4.54%) is a private employee. Sample characteristics based on nutritional status showed that 9 people (41%) were in the very thin category, 8 people (36.3%) were in the normal nutritional status category and 5 people (22.7%) were in the thin nutritional status category.

Analysis of differences in nutritional knowledge before and after treatment

Table 1. Results of analysis of nutritional knowledge using Wilcoxon signed ranks

	N	X	SD	Z	*p-value*
Nutrition Knowledge Before Nutrition Counseling	22	62.27	10.660	-4.202	0.000
Nutrition Knowledge After Nutrition Counseling	22	86.82	8.937		



Picture 1. Graph of the average nutritional knowledge score before and after nutritional counseling

Analysis of differences in energy intake before and after treatment

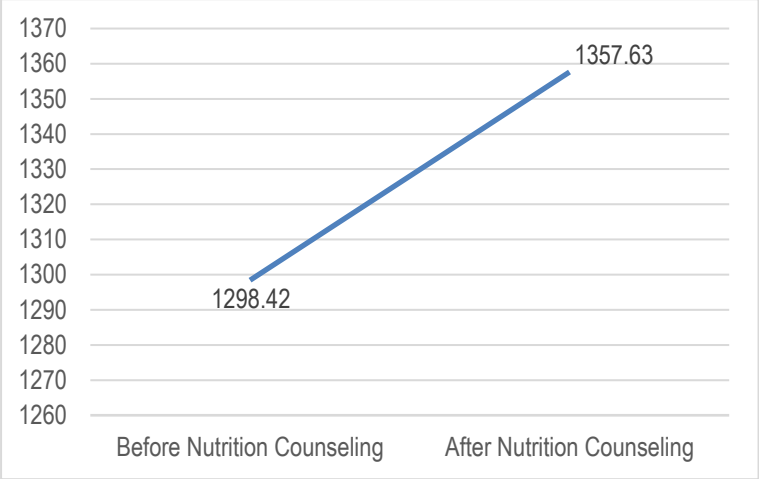
In table 2 the values are known *p-value* is 0.175 > 0.05, then H0 is accepted and H1 is rejected. So it can be concluded that there is no difference in average energy intake before and after nutritional

counseling. So it was concluded that nutritional counseling had no effect on increasing the patient's energy intake.

Table 2. Results of Paired T Test Analysis of Energy Intake

	n	X	SD	t	p-value
Energy Intake Before Counseling	22	1298.43	224.489	1.404	0.175
Energy Intake After Counseling	22	1357.68	170.427		

Different tests that have been carried out show graphs of increases before and after nutritional counseling in the average patient energy intake of 59.25 kcal (2.23%) in the graph below.



Picture 2. Graph of average energy intake before and after nutritional counseling

Analysis of differences in protein intake before and after treatment

Based on the results of the paired t test analysis in table 3, it is known that the p value is 0.254 > 0.05, so H0 is accepted and H1 is rejected. So it can be said that there is no significant difference in average protein intake before and after nutritional counseling. So it was concluded that nutritional counseling had no effect on increasing the patient's protein intake

Table 3. Results of Paired T Test Analysis of Protein Intake

	n	X	SD	t	*p-value*
Protein Intake Before Counseling	22	47.05	224.489	1.172	0.254
Protein Intake After Counseling	22	44.45	170.427		

There was an increase in the average protein intake before and after nutritional counseling for patients by 2.69 grams (5.92%).

Picture 3. Graph of average protein intake before and after nutritional counseling

DISCUSSION

Based on the research results, the characteristics of the sample in this study are represented by age, gender, education, employment and nutritional status. The first characteristic is age, where the majority are in the 50-59 year age group, namely 63.63%. The lowest age in the sample was 41 years and the highest was 60 years. This is in line with the Indonesian Renal Registry 2016 (IRR) that the majority of hemodialysis patients are in the 45-64 year age group. Apart from that, research (Nasution et al., 2020) concluded that age ≥ 44 years is the most common determinant of CKD patients in Indonesia.

Characteristics according to gender in this study were that the majority of the sample was male, namely 63.63%. Men have a greater risk of experiencing CKD. Data on CKD in Indonesia (IRR) and in Australia show that the risk of CKD in men is greater than in women. The number of male patients each year is greater than female. This is due to the influence of differences in reproductive hormones; lifestyle such as consumption of protein, salt, cigarettes and alcohol consumption in men. Sample characteristics based on nutritional status showed that 9 people (41%) were included in the very thin category.

The results of this study support the hypothesis put forward by researchers that

providing nutritional counseling is effective in increasing patients' nutritional knowledge. Providing repeated counseling can increase patient knowledge because the information obtained is described as input, where the counselor provides information that is more focused on the patient's nutritional problems. The media used in counseling is also a factor in increasing patient knowledge in the form of leaflets and food models.

Of the 22 samples, there were 16 patients (73%) who were included in the category of low energy intake after providing nutritional counseling so it can be concluded that nutritional counseling was not effective in increasing the energy intake of CKD patients undergoing HD, while as many as 17 patients (77%) were included in the category Protein intake is less after providing nutritional counseling so it can be concluded that nutritional counseling is not effective in increasing protein intake in CKD patients undergoing HD.

Counseling cannot increase the patient's food intake because the patient's average energy and protein intake is inadequate. There are many influencing factors such as stress, lack of family support in preparing food, gastrointestinal disorders such as nausea and vomiting, misperceptions about the diet provided, non-compliance with the diet as recommended and the patient's behavior or habits in consuming small amounts of food.

From the results of 1x24 hour recall interviews conducted before and after nutritional counseling, most patients consumed 1 scoop of rice at every meal, some even consumed only 1-2 tablespoons at every meal. Sources of carbohydrates, both complex and simple carbohydrates, are various sources of energy consumed. The types of complex carbohydrates that patients often consume include corn, cassava, potatoes and brown rice. Simple carbohydrates that are often consumed include sweet tea, candy, biscuits, wafers and honey.

The protein sources that patients often consume are mostly proteins with low biological value (derived from plants), such as tofu and tempeh. Chicken and fish are not consumed every day. One of the 22 samples was a vegetarian who only consumed vegetable side dishes every day.

CONCLUSION(S)

The results of the study showed that there were differences in the level of knowledge, energy intake and protein intake before and after providing nutritional counseling to Chronic Kidney Failure patients. The patient's level of knowledge, energy and protein intake increased after being given nutritional counseling. Nutritional counseling is effective in increasing nutritional knowledge in chronic kidney failure patients with hemodialysis therapy at RSUP Prof. Dr. I.G.N.G. Ngoerah. Regarding energy and protein intake, although energy and protein intake increased after nutritional counseling, nutritional counseling was not effective in increasing energy and protein intake. . It is hoped that sufferers of chronic kidney disease can maintain positive behavior and increase self-awareness to adhere to the recommended diet. Apart from that, chronic kidney failure patients should think more critically and seek information about the recommended diet and the dangers of not adhering to the diet from health workers.

Conflict of Interest

We all authors declare that there is no conflict of interest from this research activity

Acknowledgment

We would like to express our thanks to all parties who helped with this research. In particular, we would like to thank the school for their assistance from the start of this research through to the evaluation process.

REFERENCES

Kementerian Kesehatan RI. (2017). Dietetika Penyakit Infeksi. *Kementrian Kesehatan RI*, 207–2014.

Marbun, R. M., Multi Karina, diah, Maya, C., Jusfera Pakpahan, J., Sinaga, A., Fanny Samosir, L., Tampubolon, M., Gizi, J., Kemenkes Jakarta, P. I., PGI Cikini Jl Hang Jebat III, R., & Baru Jakarta Selatan, K. (2021). Pengaruh Konseling Gizi Dengan Buku Harian Diet Terhadap Pengetahuan, Sikal, Dan Kepatuhan Diet Pasien Gagal Ginjal Dengan Terapi Hemodialisis. *Kocenin Serial Konferensi*, *3*(1), 1–10. https://publikasi.kocenin.com/

Rustami, H. S. (2018). *Hubungan Pengetahuan Gizi Dan Kepatuhan Diet Dengan Kadar Kolesterol Pada Pasien Chf Di Rsud Kota Surakarta*. 46–50.

Shrestha, N., Gautam, S., Mishra, S. R., Virani, S. S., & Dhungana, R. R. (2021). Burden of chronic kidney disease in the general population and high-risk groups in South Asia: A systematic review and meta-analysis. *PLoS ONE*, *16*(10 October). https://doi.org/10.1371/journal.pone.0258494

Angraini, D. I. (2015). The Different Of Protein Intake Between Chronic Renal Failure Patients With Malnutrition And Not Malnutrition In Hemodialysis Unit At Dr. Abdul Moeloek Hospital Bandar Lampung. Jurnal Kedokteran Kesehatan: Publikasi Ilmiah Fakultas Kedokteran Universitas Sriwijaya, 2(2), 163–168. Https://Ejournal.Unsri.Ac.Id/Index.Php/Jkk/Article/View/2546

Astuti, A. T., & Septriana, S. (2018). Asupan Energi, Zat Gizi Makro, Dan Zat Gizi Mikro Pada Pasien Hemodialisis Di RSUD Panembahan Senopati Bantul. Jurnal Nutrisia, 20(2), 45–52. Https://Doi.Org/10.29238/Jnutri.V20i2.36