Pontianak International Health Conference (PIHC)
Health Polytechnic of Health Ministry Pontianak
http://www.pihc.poltekkes-ptk.ac.id

THE APPROPRIATENESS OF DIETARY PRESCRIPTION, DESCRIPTION AND NUTRITIONAL INTAKE OF TYPE II DIABETIC PATIENTS IN HOSPITALS OF CENTRAL SULAWESI

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Abstract

The Fulfillment of nutritional needs of Type II Diabetic Patients from diet prescription, description, distribution to nutritional intake could bring incompatibility of nutritional needs with the patient's nutritional intake. This research aims to analyze the suitability of diet, diet and nutritional intake of Type II Diabetic Patients in Central Sulawesi. This research is analytical descriptive. This research conducted from July 26 to October 3, 2017 at Inpatient and Nutrition Installation of Luwuk Hospital, AnutalokoParigi Hospital and AnutapuraPaluHospital . The research sample is a diet recipe made by doctor or nutritionist and Type II Diabetic Patient. Primary data were obtained by looking directly at food distribution activities and patient's nutritional intake using medical records and standard 24-hour recall forms. The results showed that prescription rates for Type II Diabetic Patients were 1750.6 ± 129.9 calories. The food served (diet description) was 1686.6 ± 113.5 and the patient's nutritional intake was 1563.5 ± 122.2 calories. Carbohydrate, Protein and fat content in the food description presented from the Nutrition Installation for patients averaged 268.4 ± 20.9 g, 67.0 ± 5.1 g and 38.3 ± 2.6g while those taken by patients respectively were 265.3 ± 26.9 g, 55.9 ± 10.4 g and 30.9 ± 2.8 g. The study concluded that the suitability of dietary prescriptions with dietary descriptions on Type II Diabetic Patients in Central Sulawesi was 83.5%. Between nutritional intake and dietary descriptions was 60.8%. Between nutritional intake and diet prescription was 48.1%.

Keywords: diet prescription, nutritional intake

Introduction

The qualities of human resources in a country described by economic growth, life expectancy and education level are directly influenced by health and nutrition factors.Therefore nutrition improvement is necessary to enhance the health and nutritional status of the community through nutrition improvement, both in families or individuals who are undergoing treatment at health care facilities such as in hospitals (Kementerian Kesehatan RI, 2013).

Nutrition services in the hospital are provided according to the patient's condition, based on clinical circumstances, nutritional status and metabolism.Nutrition services in hospitals include the process of assessment, nutrition diagnosis, nutrition interventioncovering the planning, food providing, education and counseling, also monitoring and evaluation of nutrition (Kementerian Kesehatan RI, 2013).

Some evidences in developed countries have proved that hospital malnutrition is a complex and dynamic problem.Malnutrition of patients, especially inpatient cares at hospitals, adversely affects the healing process.In addition, patients who experience a

decrease in nutritional status will have significant risk of recurrence in a short time.All these circumstances can increase morbidity and mortality and decrease quality of life (Indrawati, I., 2015).

Some of success indicators towards hospital nutrition service are;realization of determining nutritional needs, implementation of evaluation on the diet prescription which is given following clinical circumstances change, nutritional status and laboratory status, and realization of diet prescription translating.The length of the flow of nutritional needs from the nutritional status of anamnesis to nutritional intake allows the inappropriateness between nutritional needs and the patient's nutritional intake (Hafid, F., 2007).

In contrast to prescription drugs, the contents listed according to standards and doses, while diet prescription is uncertain because its product in the form of foods that contain different nutrients from each foodstuff which must then be translated by a nutritionist into the food exchanger following Household Size Standard by involving many people to obtain food that fits the standard (Laksmini, P.A., 2015).

The research at Wahidin Sudirohusodo Hospital of Makassar indicate that the determination of diet prescription towards type II diabetic patients generally are on a diet DM 1300 and DM 1500. The results of the research found an inappropriateness between distribution and the intake of type II diabetic patients at hospital inpatient cares installation (Hafid, F., 2007).

The research at Portland Hospital USA which uses 80 medical records of traumatic and cancer patients indicates that Doctor dietary prescription is generally lower than Nutritionist prescriptions.For example, the Nutritionist's recommendation of energy is 2.053 ± 316 kcal while the Doctor is 1,718 ± 656 kcal with an average difference of 335 kcal.Recommendation of protein requirement by Nutritionist 91 ± 22 g while recommendation of doctor equal to 72 ± 28 g different 19g.The fluid requirement is recommended by the Nutritionist as much as 2,000 ± 521 ml whereas by a doctor of 1,498 ± 613 ml with an average difference of 502ml. However, in clinical case, Nutritionist autonomy is limited, so some changes in diet prescriptions by doctors can be implemented without requesting Nutritionist (Hagan, D.W., et all., 2000).

The Research in Sanglah Education Hospital of Denpasar indicates that diet prescriptions from clinical nutrition specialist doctor in obedience withfood labels, foodlabels with food portion, food portion with served food, and the diet prescription until the food is presented (Laksmini, P.A., 2015).

The Research in North Koreafound that the patient had consumed 80-90% of their nutritional needs. Nowever, the intake of calcium, iron, and vitamin B2 is still less than the RDA.Nutrition of the planned menu meets 90-110% of the nutritional standards on a diet manual in three hospitals. More than planned nutritional needs provided for patients at hospital A and C, and more than 110% of the planned amount.On the other hand, some of provided menus in the hospital B do not meet the nutritional plan,due to the planned menu does not comply with the nutritional standards specified in the manual for diabetic diet and low-sodium diet at Hospital B. The cumulative differences cause patients not getting the nutrients they need.Nutrition staff at the

hospital did not measure the material using a measuring instrument neither standard recipe during production (Kim, K., et all., 2010).

Anutapura Hospital, Parigi Hospital and Luwuk Hospital are public hospitals in Central Sulawesi.One of the services provided is the inpatient cares service.Based on results of preliminary study with secondary data obtained, the timeliness of feeding towards typical diet patients with oral feeding is appropriate.Assessment of the accuracy of this typical diet is known to only use secondary data from the results of nutritionists recording and reporting. However, there is no data yet about the appropriateness of the diet prescription with food that was served. If the standardized nutritional care provision in hospitalized patients is not performed well, it will cause malnutrition and the healing of patients becomes inhibited.Research on this case has not been done in Central Sulawesi while the number of patients who require nutritional services is constantly increasing.

Method and Material

This research is analytical descriptive. This research conducted from July 26 to October 3, 2017 at Inpatient care and Nutrition Installation of Luwuk Hospital, Anutaloko Parigi Hospital and Anutapura Palu Hospital. The research sample is a diet recipe made by doctor or nutritionist and Type II Diabetic Patient. Primary Data were Obtained by looking directly at the food distribution activities and the patient's medical records using nutritional intake and standard 24-hour recall forms.

Results

The research sample of type II diabetic patients which was obtained most from Anutapura Palu Hospital are 31 people (39.2%).Average prescriptions for type II diabetic patients amounted to 1750.6 ± 129.9 calories.The served food / description 1686.6 ± 113.5 and intake 1563.5 ± 122.2 calories.The carbohydrate content of the food served on the Installation Nutrition for type II diabetic patients by an average of 268.4 ± 20,9g while patients take by an average of 265.3 ± 26,9g.The protein content of the food served on the Installation Nutrition for type II Diabetic patients average of 67.0 ± 5,1g while patients take by an average of 55.9 ± 10,4g.The fat content of the food served on the Installation Nutrition for type II diabetic patients by an average of 38.3 ± 2,6g while diasup patients by an average of 30.9 ± 2.8 g.In this study, the appropriateness is the number of calories between prescription, description and nutritional intake has a difference of no more than 10%.After the calculation, samples that have the appropriateness of prescription start up to 38 people intake or 48%.

Table 1. Distribution of the respondents according to the hospital.

Hospital	n	%
Luwuk Hospital	25	31,7
Anutaloko ParigiHospital	23	29,1
Anutapura PaluHospital	31	39,2
Total	79	100,0

Table 2. Prescription Rate, Description And Calorie Intake Of Type 2 Diabetes Patients In The Hospital In Central Sulawesi

Hospital	n	diet prescription	Description	Intake
Luwuk Hospital	25	1772,0±127,5	1726,5±107,3	1564,0±136,4
Anutaloko ParigiHospital	23	1778,2±131,2	1704,6±118,4	1545,0±144,5
Anutapura PaluHospital	31	1712,9±125,8	1641,0±101,4	1576,8±90,5
Total	79	1750,6±129,9	1686,6±113,5	1563,5±122,2

Table 3. Average Description and Carbohydrate Intake of Type 2 Diabetes Patients In Hospitals In Central Sulawesi

Hospital	n	Description (gr)	Intake (gr)
Luwuk Hospital	25	275,2±19,4	261,6±30,8
Anutaloko ParigiHospital	23	272,0±23,8	262,1±30,5
Anutapura PaluHospital	31	260,2±17,6	270,6±19,7
Total	79	268,4±20,9	265,3±26,9

Table 4. Average Description and Protein Intake of Type 2 Diabetes Patients In Hospitals In Central Sulawesi

Hospital	n	Description (gr)	Intake (gr)
Luwuk Hospital	25	69,3±4,1	58,6±11,6
Anutaloko ParigiHospital	23	68,1±3,7	54,5±11,0
Anutapura PaluHospital	31	64,2±5,7	54,8±8,8
Total	79	67,0±5,1	55,9±10,4

Table 5. Prescription Rate, Description and Intake of Fat Type 2 Diabetes Patients In Hospital In Central Sulawesi

Hospital	n	Description (gr)	Intake (gr)
Luwuk Hospital	25	38,7±2,1	31,4±3,7
AnutalokoParigi Hospital	23	38,2±2,0	30,9±2,3
AnutapuraPalu Hospital	31	38,1±3,3	30,5±2,4
Total	79	38,3±2,6	30,9±2,8

Table 6. The Appropriateness of Dietary Prescription, Description and Nutritional Intake of Type II Diabetic Patients in Hospitals of Central Sulawesi

Kesesuaian	Sesuai		Tidak Sesuai	
	N	%	N	%
Prescription with Description	66	83,5	13	16,5
Description with Intake	48	60,8	31	39,2
Prescription with Intake	38	48,1	41	51,9

Discussion

The International Diabetes Federation (2015) that Type II Diabetes is the most common type of diabetes.Usually occurs in adults, but is increasingly seen in children and adolescents.In type II diabetes, the body is able to produce insulin but becomes resistant that causes insulin is ineffective.Over time, the insulin levelsbecome insufficient.Second,insulin resistance and deficiency causes high blood glucose levels. Symptoms of type II diabetes include;frequent urination, excessive thirst, weight loss and blurred vision (The International Diabetes Federation, 2015).

Nutritional care of type II diabetes requires the process flow of planning meal activities until the food is presented to patients. It involves several people who have different professions such as doctors, nutritionists and waitresses by producing a food that is in accordance with the standards start from planning to serving must be in accordance with the amount, type, and patient feeding schedule.Phase process of nutritional care starts from the dietary prescription,food labeling, dietary description, food portion and presentation of food for patients.

Nutritionists are expected to be proactive and follow the phase of accurate and comprehensive nutritional services with emphasis on monitoring anddetermining the nutritional status that are conditioned to the patient individual condition and seriousness factor of disease.These activities include studying and analyzing health history data, nutritional history, laboratory values and anthropometric measurements.Based on these data, patients nutritional planning is made individually bymodifying diet andnutritionaleducationto attain optimal nutrition and health status.

Monitoring of metabolic status is important in the management of DM. The results of the monitoring are sufficient to assess dietary obedience and treatment benefits to achieve blood glucose levels within normal limits, as well as avoid complications.For controlled DM patients with meal planning, monitoring of metabolic status in the form of healthy feelings subjectively, blood glucose levels, blood lipid levels, and weight changes during nutritional counseling is sufficient to describe dietary obedience.Dietary obedience can also be assessed from the amount of nutrient intake and the type of food consumed by patientevery day (Paruntu, O.L., 2012).

Determination of nutrient requirements given to patients/clients based on nutritional diagnosis, patient condition and type of illness.Self-dietary prescription is a brief overview of recommendations on energy and individual nutrient requirements, dietary type, dietary form, nutritional composition and eating frequency.Determination of dietary prescriptions for type II diabetic patients is performed by an internist or nutritionist.The dietary description is the provision of food based on the translation of dietary prescription in the form of menu.Dietary description is made by nutritionist on inpatient care room while the intake of nutrients is food consumed by patients who are provided by the hospital or food from outside the hospital.

The results of this study indicate that the average of prescription for type II diabetic patients is 1750.6 ± 129.9 calories.In detail, patients who received diet DM 1500 are 9 people (11.4%), patients who received diet DM 1700 are 41 people (51.9%), Patients who received diet 1900 DM are 29 people (36.7%).The results of this study were higher than those

in Makassar which showed that dietary prescription was started from 1300 calorie to 1900 calorie of diet.

In general, patients on inpatient care installation have made food requests based on order / early dietary order from the doctor duty / responsible for service (DPJP).Nutritionists, whether in groups or independently, will determine the type of diet based on nutritional diagnosis.Since the type of determined diet suitable with the diet order then the diet is continued with the design of the diet.If the diet is not suitable, it will be proposed changes in the type of diet by discussing it first with the DPJP.Furthermore, after the patient is treated by a doctor, the doctor himself or with a nutritionist establishes a definitive dietary prescription.These prescriptions can be found on medical records of doctor's sheets or on the patient's medical record sheets.

The dietary prescriptions may change according to the degree of diabetes, nutritional status or weight, blood sugar levels and the amount of insulin injected.Changes can occur in 2 days, 3 days, 5 days or 1 week.This non-permanent change which if it is not followed by information and notification to the food processing nutrition installation room, may be the cause of an inappropriateness between prescription and dietary description.In practice, every morning nutritionist performs a round of recording to the dietary prescription change of type II diabetic patients in the hospital so may decrease the probability of inappropriateness.

The results of this study also showed that the average number of calories prescribed is 1750.6 ± 129.9 while distributed to patients amounted to 1686.6 ± 113.5. The appropriateness of prescriptions with description is found on 66 persons (83.5). This means that the appropriateness of dietary prescriptions with dietary descriptions is well. The role of nutritionists in translating dietary prescriptions in the form of food descriptions is important to be implemented. It also proves how the benefits of patientfood labelsin keeping theappropriateness between prepared foods with served foods for patients.The 16.5% dietary prescriptions that are not appropriate with the dietary descriptions become small notes for nutritionists in providing nutritional services to patients.

Food request withfoodlabelis a demanding foods process with typical diet which usesfoodlabelsto nutrition installation following the hospital feeding standard as URT with the help of a waiter. The acceptance of typical diet with foodlabelis the process of labelreceiptof a typical diet from the waitress which is subsequently recapitulating and organizing typical diet in the Nutrition Installation for food that is given to each patient

The Research in Sardjito Hospital found that 51.8% of treated patients had inadequate foods intake in the first three days of hospitalization, and this may take several days during inpatient care.It also shows that the accuracy of given diet which is known from nutritionist reports and evaluation of recording in nutrition registered book and recording by waitress.

Description of the amount of calories that are presented from the Installation Nutrition for type II diabetic patients by an average of 1686.6 ± 113.5with detailing food content; carbohydrate268.4 ± 20.9gprotein 67.0 ± 5.1gandfat of served food from the nutrition installation for type II diabetic patients by an average of 38.3 ± 2,6g.The results of this study were lower than those in Makassar that type II diabetic patients indicating the distributed food

contained an average of 1856.9 kcal of energy, 297.8 g of carbohydrate, 72.5 g of protein and 40.9 g of fat.

The presentation of typical dietary foods of diabetic patients is an activity of presenting typical diet foods which is received by each patient following the dietary prescriptions requested by internist that in the form of food served using plato, serving plates covered with wrap plastic. It aims to cover food, to keep food temperature so that it stays warm to patient hands, and to reduce contamination such as fly or dust.

Patient intake is calculated using 24-hour recall method.The results showed that the average of intake energy of type II diabetic patients is 1563.5 ± 122.2 calories.Carbohydrate intake is 265.3 ± 26.9, protein intake is 55.9 ± 10.4 and fat intake is 30.9 ± 2.8. The Appropriateness of dietary description with patient intake is found on 48 people (60,8%).This also could mean that there are 39.2% of patients receiving food from outside.Lack of supervision system in hospital is the main cause of the entry of food from outside the hospital in Central Sulawesi. However, it has a positive and negative impact.The positive is the food from outside the hospital which became the favorite of patients can add calories to patients who eat less.While the negative, doctors and nutritionists would be difficult to regulatethe patient's diet that could affect the final outcome of the patient's recovery.The appropriate intake of patients ranging from dietary prescription to intake only amounted to 38 people (48%) only.

The ability of a nutritionist to explain the dietary prescription to a patient requires a special skill.The research of Wood & Doris (2015) on nine nutritionist realized that commonly patients have problems in understanding thenutritional advice given to them.Nutritionists also have difficulty in communicating nutrition information to people with low literacy levels, so this limits the patient to follow the advice given (Wood J & Doris, G., 2015).

It was mentioned earlier that the indicators of success hospital nutrition services is the realization of the determination towards nutritional requirements, the implementation of evaluation towards given dietary prescription and realization of dietary prescription translating.This study shows that the appropriateness of dietary prescription to new nutritional intake is 48.1%.

Conclusion

The appropriateness between dietary prescription and descriptions diet is 83,5%. The appropriateness between nutritional intake and dietary descriptions is 60,8%. The appropriateness between nutritional intake and dietary prescription in with Type II Diabetic patients in Central Sulawesi is 48, 1%. It is recommended that result of this research can be an indicator of success and diet obedience in the management of nutrition in with Type II Diabetic patients in Central Sulawesi.

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