RESEARCH ARTICLE

The Influence of Breakfast Quality on Blood Sugar Levels of Clients with DM Type 2

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ABSTRACT

Breakfast quality is an overview of diet and food composition which client with DM Type2 aims to find the right type, amount, and schedule as the principles of diet for DM to keep the blood sugar levels stable. The research method was cross sectional study. The population was all patients in Geriatric Unit of Gundih Public Health Center in Surabaya who already diagnosed with DM Type2, taken randomly (simple random sampling). Dependent variable was blood sugar levels of client with DM Type2. Independent variable was the quality of breakfast. The research instrument was a questionnaire and a food recall 1 x 24 hours. Data analysis was using logistic regression test. The results of the analysis of data showed that the blood sugar levels of the clients with DM Type 2 was influenced by the amount and schedule of breakfast.

Keywords: Breakfast quality, Type, Amount, Schedule, Blood sugar levels, DM Type 2

INTRODUCTION

Eating breakfast in the morning is very useful for everyone. Breakfast for adults can maintain physical fitness, maintain the current endurance work and improve labor productivity. Someone who does not eat breakfast have a risk of suffering from health problems that decrease blood sugar levels with signs include: weakness, cold sweat, decreased consciousness, fainting, skip the most important meal throughout the day can have a negative impact on mood, memory, and the energy level[1]. According to Price & Wilson (2005), the management of diet in patients with Diabetes Mellitus (DM) Type 2 aims to regulate the amount of calories and carbohydrates consumed every day with the right amount, schedule and types[2]. Diet with precise amount, schedule and type of the principles of the diet for DM should pay attention to the amount of calories that should be given up, do not be reduced or increased according to the needs, diet schedule should be in accordance with the intervals, which are divided into 6 meals, which is 3 main meals and three times a snack[3].

According to Arisman (2010), the number of diabetics in the world which was recorded in 1990 reached 80 million, which is an astonishing figure jumped to 110.4 million four years later. By the year 2010, this figure is expected ballooned to 239.3 million and is expected to continue to soar to reach 300 million by 2025. Indonesia is one of the 10 countries with the highest number of diabetes. In 1995, the country's relatively new growing ranks seventh, diabetes prevalence of 4.5 million inhabitants. This ranking is predicted to go up two places to number 5 in 2025, with the estimated number of patients as many as 12.4 million people. Fluctuations in these figures each year make a concern for everyone, but actually beware that diabetes can affect anyone, not just adults, children can also be victims. Moreover, the modern urban lifestyle makes everything instantly without having to do anything. Diabetes Mellitus is a degenerative disease that is strongly associated diet. Diet is an overview of all kinds, the amount and composition of food eaten every day by someone. Urban lifestyle with a high in fat diet, salt, and sugar, its frequency of a reception / party, people tend to consume food resulted in excessive lead to various diseases, including diabetes[4].

DM type II occupies more than 90% of cases in advanced and developing countries. The diseases caused by diet, unhealthy lifestyle and are not offset by a decline in the sport which then triggers antibodies and cause damage to the organs and vital body systems. Some prevention can be done to avoid the DM disease, both primary and secondary. Primary prevention is in the form of prevention through lifestyle modifications such as appropriate diet, adequate physical activity or sport.

METHODS

The research method was using cross sectional study. Dependent variable was blood sugar levels in client with DM Type2 and independent variable was quality of breakfast (type, amount, and schedule). The research instruments were a questionnaire and a food recall 1 x 24 hours. Measurement of foodstuffs intake assess needs of Nutrition Adequacy Score, in accordance with the needs of calories in a day[5]. Using a 24-hour recall method and a questionnaire determined the type and composition of the meal. The results of the fasting blood glucose were recorded in medical status accordance respondents in patients who have been diagnosed with type 2 diabetes.

Based on the research objectives, according to the study design was cross sectional study time for one-time observation (point time approach). The population of all patients seeking treatment at Gundih Public Health Center Surabaya, already diagnosed with DM Type 2. The sample size was 100 people were taken randomly (simple random sampling). The variables were breakfast quality (type, amount, and schedule) and blood sugar levels of clients with DM Type II in Gundih Public Health Center Surabaya. Data collection conducted during the period of May 2016 to October 2016. Measurements of food intake assess needs Nutritional Adequacy Score, in accordance with the needs of calories in a day[5]. Using methods recall 24 hour and a questionnaire to determine the type and composition of the meal. Recall 24 hours showed models of food for the real food to the respondent / subject or see a list of size of household. Data of random blood glucose was taken from medical record. Methods of data analysis were: 1) frequency and percentage[6]; 2) Logistic Regression test.

RESULTS

Table 1. Distribution of breakfast quality and a blood sugar level of clients with DM Type 2

Variables	Frequency (n = 100)	
	f	%
Type of breakfast		
Good	58	58.0
Worse	42	42.0
Amount of breakfast		
Good	39	39.0
Worse	61	61.0
Schedule of breakfast		
Good	53	53.0
Worse	47	47.0
Random blood sugar level		
Low	33	33.0
High	67	67.0

Table 2. The influence of breakfast quality (type, amount and schedule) on blood sugar levels of clients with DM Type 2

Breakfast quality	Exp (B)	95.0% C. I.		p-value
		Lower	Upper	
Type	--	.000	--	0,997
Amount	3.442	1.326	8.935	0,011
Schedule	5.510	1.933	15.703	0,001

Table 2 shows the results of Logistic Regression test (the influence of type, amount, and schedule of breakfast on blood sugar levels of clients with DM Type 2). The p-value of type of breakfast was 0.997 (>0.05) so excluded from the model. The p-value of amount of breakfast was 0.011 (<0.05) so it could be concluded that amount of breakfast was a determinant of blood sugar levels of clients with DM Type 2. The p-value of schedule of breakfast was 0.001 (<0.05) so it could be concluded that schedule of breakfast was a determinant of blood sugar levels of clients with DM Type 2.

Schedule of breakfast had a value of Exp (B) shall be a maximum = 5.510. This means that test results of interaction was not significant (p = 0.398 or > 0.05) means that there was no interaction between the amount of breakfast and the schedule of breakfast. Schedule of breakfast had dominant effect on blood sugar levels of clients with DM Type 2.

DISCUSSION

Breakfast quality

Food for people with diabetes is the same as the food for people who are not diabetic, foods with balanced nutrition, known as 13 (thirteen) basic message of balanced nutrition. According Asdie (2004), a diet for people with diabetes is diet with calorie balance with regard the amount, type, and schedule[7]. According to various studies that a good meal frequency is three times a day. This means that the morning meal (breakfast) is not to be abandoned. Breakfast should be accounted for approximately 25% nutrition. Nutritional about 25% is a significant amount for the remaining needs of the energy and other nutrients must be met by lunch, dinner and a snack between two meals[8].

Breakfast quality as determinant of blood sugar levels of clients with DM Type 2

The results of data analysis showed that the amount and schedule of breakfast affect the blood sugar levels of clients with DM Type 2. In this case, the breakfast schedule is a factor that has a greater influence on blood sugar levels. Thus, it can be concluded that the breakfast schedule is the main determinant for blood sugar levels of clients with DM Type 2. Thus a good food schedule will be able to control blood sugar levels, so that clients will be able to live everyday life with more comfortable and safe. This is consistent with revelation of Asdie (2000) that people with diabetes mellitus should eat regularly, with frequent feeding frequency, but with small portions, and divided into 3 times. It is intended to prevent the occurrence of blood sugar fluctuations[7].

CONCLUSION

Blood sugar levels of clients with DM Type 2 in Gundih Public Health Center Surabaya is determined by amount and schedule or breakfast, so suggested that: 1) Clients with DM Type 2 should get used to eating a balanced diet on a regular basis and as needed calories a day, get used to eating frequency more often and small portions are divided by 3 times of large meals and 3 meals of snack, with a distance of every 3 hours, with doing breakfast every day will ensure your body has enough energy for activities, as well as help keep blood sugar levels normal. The hunger due to skipping breakfast tends to make someone's lunch with excessive portions; 2) For subsequent studies should examine the food intake (micro and macro minerals in clients with Type 2 DM with blood sugar levels by looking at the results of the laboratory (HbA1c).

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