Healthy Lifestyle Against the Incidence of Diabetes Mellitus

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Abstract

Diabetes Mellitus is a chronic condition that occurs when the body cannot produce enough insulin or cannot use insulin, and is diagnosed by observing an increase in glucose levels in the blood. This research aims to determine the relationship between the level of knowledge and lifestyle in diabetes mellitus sufferers who occur in the Sirandorung sub-district area. Diabetes mellitus type I most often attacks children to teenagers. At the age of more than 30 years, diabetes mellitus sufferers usually tend to develop type 2 diabetes (Wistiani, 2016). For diabetes mellitus sufferers, a healthy lifestyle must be prioritized, such as reducing sugar consumption. Reduce salt/low salt. Choose high fiber foods. Consume wheat, brown rice, or cereal instead of white rice.

Keywords: Diabetes mellitus; Causes of Diabetes Mellitus; Dietary habit; Healthy Living Behavior Patterns; Sports, insulin hormones, degenerative diseases; Smoke.

BACKGROUND

Diabetes Mellitus is one of the most frequent non-communicable diseases globally. The disease ranks fourth leading cause of death in most developing countries. Diabetes Mellitus is known as a heterogeneous disease which is usually characterized by high blood sugar levels and impaired glucose tolerance, as well as insulin deficiency, weakness of the effectiveness of the role of insulin, or for both reasons. Based on the basic etiology and clinical symptoms experienced, Diabetes Mellitus is categorized into 4 types, namely type 1 diabetes, type 2 diabetes, gestational diabetes, and specific types (American Diabetes Association, 2015).

Diabetes Mellitus (DM) is a chronic disease caused by the pancreas that does not produce insulin or when the body is unable to use insulin effectively (WHO, 2021). The high prevalence of diabetes mellitus is triggered by several factors, including excessive sugar consumption and smoking (Dian &; Bantas, 2021). As many as 38 million (68%) of the world's 56 million deaths in 2012 were caused by degenerative diseases (WHO, 2014). According to WHO, it is estimated that as many as 1.5 million deaths are caused by diabetes mellitus (WHO, 2021). Based on the Riskesdas report in Indonesia in 2013 amounted to 1.5% diabetes prevalence and increased to 2% in 2018 (Ministry of Health RI, 2018).

Diabetes Mellitus (DM) is one of the diseases whose prevalence continues to increase in the world, both in developed and developing countries, so it is said that DM has become a global health problem or disease in the community. The World Health Organization estimates that more than 346 million people worldwide have DM. This number is likely to more than double by 2030 without intervention. Almost 80% of DM deaths occur in low- and middle-income countries (Suiraoka, 2012).

In 2015 Indonesia stood in seventh position with 10 million sufferers. The number of DM sufferers is expected to increase in 2040, which is as many as 16.2 million sufferers, it can be interpreted that there will be an increase in sufferers as much as 56.2% from 2015 to 2040. Indonesia is also the third country with impaired glucose tolerance (20-79 years) in 2015 amounting to 29 million people (IDF, 2015).

According to the International Diabetes Federation In 2017, about 425 million people worldwide had DM. The largest number

of people with DM are in the Western Pacific region at 159 million and Southeast Asia at 82 million. China is the country with the most DM sufferers in the world

Data from Riskesdas in numbers, North Sumatra Province in 2018, the prevalence of DM at the age of ≥15 years in North Sumatra diagnosed was 1.8%. (Ministry of Health of the Republic of Indonesia, 2019). Data from the Medan city health office in 2018 showed that the number of DM patients was 319 people, while in 2019 the number of DM patients was 402 people and in 2020 DM patients were 512 people (Medan Health Office, 2020).

In general, diabetes is divided into two types, namely type 1 diabetes and type 2 diabetes. In type I Diabetes Mellitus, the pancreas produces less or no insulin, due to genetic, viral or autoimmune problems. Type I Diabetes Mellitus is caused by genetics, immunological factors, and environmental factors (Sari, 2016). Type I diabetes mellitus usually occurs in younger people, although it can also occur in adults. In conditions like this, patients will always need insulin injections into their bodies. One in ten people with diabetes has this type of diabetes or called insulin-dependent diabetes (Fox, 2013). While type II Diabetes Mellitus occurs due to a combination of defects in insulin production and resistance to insuliun or reduced sensitivity to insulin. The pancreatic system continues to produce insulin even though sometimes levels are higher than normal. But the body forms immunity to its effects, so there is a relative lack of insulin. The main risk factor in type two is obesity where about 80-90% of people with this type of diabetes are obese.

METHODE

This research method is with the example of 2 Sempel residents in the Sirandorung sub-district area. First I visited directly to the house of a mother, who was about 50 years old who lived on Jl. Talsim, then I introduced myself and what my purpose was for coming here, and I immediately interviewed the mother with 10 questions. Likewise with a father who is around 55 years old who lives on Jl.Manab Lubis by giving the same 10 questions.

RESULT

Based on the results of research from 2 examples of Sempel residents in Sirandorung sub-district, labuhan batu about diabetes mellitus, there are differences and similarities between people with type 1 Diabetes Mellitus and Type 2 Diabetes Mellitus. And explained with the example of Sempel 10 statements related to Diabetes Mellitus.

Diabetes mellitus is a group of metabolic diseases with hyperglycemia characteristics that occur due to insulin abnormalities, insulin action or both8. DM is one of the non-communicable diseases (NCDs) which is the 3rd leading cause of death in Indonesia9. DM is one of the main focuses of 4 NCDs that cause 60% of deaths in the 2030 SDGs target.

Based on the results of research on 2 examples of sempel residents, several determinants of DM risk factors type 1 and 2 were described, namely:

Risk factors for type 1 diabetes mellitus

Based on previous research that Daibetes Mellitus type 1 disease is proven to be followed by chronic diseases as comorbidities which include cardiovascular disease, hypertension and heart. The development of cancer in diabetics can be caused by an imbalance of the hormone insulin and high blood sugar levels. This statement is in line with Sinaga (2016), based on his research there are three main problems that afflict people with diabetes mellitus, namely the occurrence of hypoglycemia, hyperglycemia and chronic degenerative diseases. This shows that there is a relationship between someone suffering from type 1 Diabetes mellitus is very likely to develop chronic degenerative diseases including stroke, heart, cancer and so on. In contrast to previous studies that explain that chronic diseases are commonly suffered by old age or menopause for women, and for men often occur in someone who is accustomed to a lifestyle with smoking. This causes diabetics

to be more susceptible to chronic diseases as a comorbidity of diabetes (Utami, 2019).

Risk factors for type 2 DM that cannot be modified/changed;

a. Gender

Based on the results of research with Sempel 2 residents, there is a significant relationship between gender and the incidence of DM. In men and women, have the same risk of developing diabetes, but after the age of 30 years women have a higher risk than men. This is because women have a greater chance of increasing body mass index, and postmenopausal monthly cycle syndrome causes the distribution of body fat to easily accumulate due to hormonal processes that cause insulin resistance.

b. Genetic factors / family history of DM

Based on the results of this study, there is a significant relationship between family genetic factors that have a history of DM and the incidence of DM. Family history with DM reflects that there is genetic susceptibility and exposure to environmental factors in the family. The interaction between the two is an important factor in the occurrence of DM.

c. Age Factor

Based on the results of literature studies, there is a significant relationship between age factors and the incidence of DM. The average statistical test results of someone with the age of > 45 years have a risk of developing DM by 2-3.5 times more risk. Aging causes decreased insulin sensitivity and glucose metabolism which results in unstable blood sugar levels.

Risk factors for type 2 DM that can be modified/changed:

a. Unhealthy diet

Based on the results of this study, there is a significant relationship between diet / consumption with the incidence of type 2 DM. The risk is 0.4 – 6.19 times higher for type 2 DM compared to someone who has a good diet.The dietary habits of Indonesians who consume too many sources of carbohydrates and fats and the imbalance of consumption with long-lasting energy needs can cause DM. Being overweight can inhibit the work of the pancreas carrying out the function of insulin secretion which results in increased blood sugar levels so that it has the potential to get DM.

b. Stress Level

Based on the results of the research conducted, it was found that there was a significant relationship between the level of stress and the incidence of DM types 1 and 2 with an odd ratio value of 3-6 times higher than someone who was not stressed. In stressful situations, the production of the hormone cortisol by the adrenal glands increases. Cortisol is a hormone that counteracts the effects of insulin and increases blood glucose.

c. BMI Obesity

Based on the results of the research conducted, it was found that there is a significant relationship between BMI Obesity (Body Mass Index) and the incidence of DM, with an odd ratio value of 2.6 – 6 times higher than someone whose BMI is normal. BMI obesity can cause increased fatty acids in cells and cause insulin resistance.

d. Physical Activity

Based on the results of this study, it was found that there was no significant relationship between physical activity including exercise with the incidence of type 2 DM.This is not in line with the results of the study which stated that there was a significant relationship between physical activity and routine exercise on the incidence of DM. Statistically, a person who has light physical activity has risk to affected by type 2 DM disease is 1.5-5.6 times. Exercise can improve insulin sensitivity as well as control blood sugar levels.

e. Knowledge Level

Based on the results of this study, it was found that there was no significant relationship between the level of knowledge (about healthy living behavior and type 2 DM) with the incidence of type 2 DM.This is because in this study there are other factors that influence the occurrence of DM, namely the attitudes and behaviors of respondents who apply a healthy

lifestyle. Knowledge relates to the amount of information possessed and influential in shaping behavior and actions.

f. Hypertension

Based on this study that hypertension is also a major factor in the occurrence of Diabetes Mellitus.

CONCLUSION

The conclusion is that it is necessary to investigate and educate diabetes mellitus from an early age. Adopting a healthy lifestyle to maintain blood sugar levels is also very important. People over the age of 50 should also be helped to better understand what diabetes mellitus is, because most elderly people with diabetes mellitus lack knowledge and understanding. Getting used to a healthy lifestyle is very important for all of us to avoid non-communicable diseases such as diabetes mellitus, and this application can be optimized with the help of family and friends.

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