Archives of The Medicine and Case Reports
Journal Homepage: https://hmpublisher.com/index.php/AMCR/index
eISSN: 2747-2051

Description of Blood Sugar Levels in Medical Student of Universitas Prima Indonesia

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ARTICLE INFO

Keywords:
Diabetes mellitus
Blood sugar levels
Metabolic syndrome
Healthy diet

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All authors have reviewed and approved the final version of the manuscript.

https://doi.org/10.37275/AMCR.v2i2.20

ABSTRACT

Diabetes Mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia. Various epidemiological studies have shown an increasing trend in the incidence and prevalence of diabetes mellitus in various parts of the world. Lifestyle changes lead to an increasing prevalence of metabolic syndrome diabetes mellitus. This study aims to determine the description of blood sugar levels during class 2017 students of the Faculty of Medicine, Prima Indonesia University. This type of observational analytic research with sampling techniques using non-methods This research is a descriptive study with a cross-sectional study design. This research will be carried out at the UNPRI campus building 1. The sample of this study is all medical students of the 2017 Prima Indonesia University class totaling 99 people. Data were collected using a questionnaire and analyzed by univariate. The results showed that the majority of the respondents were female, namely 66 people (66.7%), while only 33 male respondents (33.3%) were male respondents. According to blood sugar levels, all respondents had normal blood sugar levels (100%). Respondents are advised to maintain a healthy diet and lifestyle so that their blood sugar levels remain stable and ultimately avoid the risk of diabetes mellitus.

1. Introduction

According to the American Diabetes Association (ADA) 2010, Diabetes Mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia that occurs due to disorders of the kidneys, nerves, heart, and blood vessels.[1]

Various epidemiological studies have shown a tendency to increase the incidence and prevalence of diabetes mellitus in various parts of the world. According to data from the World Health Organization (WHO) in 2000 the number of people with diabetes mellitus in the world reached 171 million people and continued to increase to 387 million (8.33%) in 2014. In European countries, the number of people with diabetes mellitus reached 51 million people (7.87%). In Asian countries, the number of people with diabetes mellitus is lower than in Europe, at around 74 million (8.33%).

Indonesia in 2013 has conducted Basic Health Research (Riskesdas) covering 33 provinces. The results of Riskesdas reported that the prevalence of diabetes mellitus in 2013 was 2.1%. This figure is higher than in 2007 (1.1%). Of the 33 provinces studied, 31 provinces (93.9%) showed a significant increase in the prevalence of diabetes mellitus.[2,3]

Data obtained from the Integrated Disease Surveillance (STP) data report in 2012 can be seen from the highest number of cases after diarrhea and ARI is diabetes mellitus with a total of 3,717 outpatient cases that were treated at district/city hospitals and health centers. For outpatient diabetes mellitus, there were 2.918 outpatients in 123 hospitals and 809 patients treated at 487 health centers in 28 districts/cities throughout North Sumatra.

Meanwhile, in 2013, 3,948 patients were admitted to the hospital. Based on these data, it can be seen that diabetes mellitus sufferers in North Sumatra are still very high. Medan city health office data the number of diabetes mellitus sufferers in 2013 was 27,075 people and in 2014 January and February were 3.607 people.[4]

As a developing country, Indonesia has experienced a change from an economic perspective, from an agricultural-based economy to an industry-based economy. One of the characteristics of an industrial-based economy is the massive use of technology which causes the replacement of human roles, such as in the transitional agricultural economy, which causes changes in a lifestyle where people are more likely to do less physical activity and eat fast food (commonly referred to as junk food).[5,6]

This has led to an increase in the prevalence of metabolic syndrome diseases such as diabetes mellitus in Indonesia, according to Riskesdas in 2018, the number of diabetes mellitus patients based on a doctor's diagnosis in a population aged ≥15 years increased to 2%. Therefore it is necessary to check blood glucose levels regularly for screening and diagnosis of diabetes mellitus, one of which is a random blood glucose check.

Glucose is the most important carbohydrate which is mostly absorbed into the bloodstream and other sugars are converted into glucose in the liver. Glucose is the main fuel in body tissues and functions to produce energy. Blood glucose levels are closely related to diabetes mellitus (DM). An increase in blood glucose levels at ≥ 200 mg / dL accompanied by symptoms of polyuria, polyphagia, and unexplained weight loss is sufficient to establish a diagnosis of diabetes mellitus (DM).

Based on the initial survey, the Faculty of Medicine, Prima Indonesia University (UNPRI) is one of the Medical Faculties in North Sumatra Province which has various activities and facilities. Students of the Faculty of Medicine, Universitas Prima Indonesia (UNPRI) have a busy schedule because in addition to academic activities they also have Early Clinical Exposure (ECE) activities that they must participate in. The facilities available at UNPRI are K3 and Café Taria which serve fast food and junk food, which can increase glucose levels in the blood so that there is a risk of interference with glucose levels. Researchers feel this research is important to do to increase students' attention to blood glucose levels.

Based on the background description above, the researcher was interested in conducting research on the description of blood sugar levels during the 2017 batch of medical students at UNPRI Medan.

2. Methods

Descriptive research with cross-sectional study design. The research was conducted from April 2020 to May 2020 and took place at the UNPRI campus 1 building. The population of this study was all students of the medical faculty of UNPRI Medan, batch 2017. The sample size was determined by total sampling and obtained 99 samples that met the inclusion and exclusion criteria. The data were collected by means of a questionnaire. The data analysis uses univariate.

3. Results and Discussion

The frequency distribution of the gender characteristics of the respondents can be seen in Table 1 below. Based on table 1 above, the characteristics of respondents according to gender are mostly women as many as 66 people (66.7%), while male respondents are only 33 people (33.3%). The frequency distribution of respondents' blood sugar levels can be seen in Table 2 below. Based on table 2 above, all respondents have normal blood sugar levels (100%).

Table 1. Frequency distribution of respondents' gender characteristics

Gender	F	%
Male	33	33.3
Female	66	66.7

Table 2. Frequency distribution of respondents' blood sugar levels

Blood sugar levels	F	%
Normal	99	100

This study aims to determine the description of current blood sugar levels in students of the Faculty of Medicine UNPRI Medan class 2017. The samples of this study were all students of the Faculty of Medicine UNPRI Medan class 2017. The data collected were analyzed descriptively.

Based on the characteristics of the respondents, the results showed that the majority of respondents were female, namely 66 people (66.7%), while male respondents were only 33 people (33.3%). The results of this study are in line with research conducted by Hartina (2017) which states that most respondents are women (66.7%), while only male respondents (33.3%)[1]

Research by Putra et al (2015) also shows the same results as this study that 52.9% of students in batch 2015 at the Faculty of Medicine, Sam Ratulangi Manado, who became respondents were women.[2] However, the results of this study are different from the research of Amir et al. (2015) which states that most respondents who did check blood sugar levels at the time were men, namely 54.5%, while female respondents were only 45.5%.[3]

In this study, it appears that women have a greater chance of experiencing increased blood sugar levels than men. According to the statement put forward by Rivandi (2015) in Hartina (2017) women are more at risk because physically women have a greater chance of increasing body mass index.[1] Monthly cycle syndrome (premenstrual syndrome), post-menopause which makes the distribution of body fat easily accumulate. At menopause, the ovaries stop producing the hormone estrogen and estrogen is produced exclusively from androsterone which is produced by the adrenal glands and is automated into estrone in the process of converting extra peripheral glands. This transformation mainly occurs in fat tissue, causing postmenopausal women to have more fat tissue.[4]

The accumulation of fat, especially fat in the abdomen, results in reduced adiponectin protein. Adiponectin plays an important role in glucose and fatty acid metabolism, especially in muscle cells and liver cells which become more sensitive to insulin action. Therefore, increasing intra- abdominal central body fat in menopausal women is believed to have an important role in the development of insulin resistance after menopause which can increase blood glucose levels and eventually progress to DM.[2]

In addition, depression can also trigger an increase in blood sugar. Men and women also differ in dealing with a stressor. Men are sometimes less emotional, so they prefer to directly solve the problem at hand or face the source of stress directly. Meanwhile, women tend to use feelings or be more emotional so they rarely use logic or ratios which makes it more difficult for women to deal with stress.[1]

In accordance with the purpose of this study, namely to determine the description of current blood sugar levels in students of the Faculty of Medicine UNPRI Medan class 2017, the definition of blood sugar levels according to Hartina's opinion (2017) is a glucose level test that can be done for a moment, without having to fast for carbohydrates first or consider the last food intake. Examination of blood sugar levels while in this study using glucose.[1]

Based on the results of the study showed that all respondents had normal blood sugar levels. This situation can be caused by several things, including a proper nutritional diet, exercise, and regular medication.[3] Research conducted by Putra et al (2015) showed different results from this study that 42 of the 51 students of the 2015 class of the Faculty of Medicine, Sam Ratulangi Manado (82.4%) had normal blood sugar levels while 9 other respondents (17.6 %) with low blood sugar levels.[2]

The results of research conducted by Amir et al (2015) on blood glucose levels in patients with type 2 diabetes mellitus at the Shoulder Health Center of Manado City, where the results obtained were not the same as this study, that the results of examining blood glucose levels showed that 11 respondents (50 %) who have bad blood glucose, which is above 180 mg / dL. There are differences in the results of this

study from several previous studies due to differences in locations and research samples.[3]

In this study, it was found that all respondents had normal blood sugar levels. According to Suiraoka (2012), age is also associated with the risk of increasing blood glucose levels, with increasing age the ability of tissues to take blood glucose will also decrease. This is because, at a young age, carbohydrate metabolism and organ function are still good. Blood glucose levels in normal adults are a manifestation of the ability of insulin secretion by the pancreas and the ability to uptake glucose by target tissue cells.[6] The hormone insulin has the most dominant effect on carbohydrate metabolism, this hormone lowers glucose levels and promotes the storage of nutrients (glycogenesis).[2] According to Dewa (2016) the decrease and increase in carbohydrate intake will affect glucose levels in the blood.[6]

Based on the results of the study and the description of the discussion, the researchers assume that blood sugar levels increase as a person ages. If it is not prevented and treated, a person will be at great risk of developing diabetes mellitus. Therefore, dietary regulation needs to be considered by everyone, especially people with diabetes mellitus.

5. Conclusion

The conclusion of this study is that the description of blood sugar levels during the 2017 Faculty of Medicine UNPRI Medan students is that all blood sugar levels during the normal time.

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