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TYPE 2 DIABETES MELLITUS IN WOMEN IN THE MARHAMAT DISTRICT OF ANDIJAN REGION

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Abstract
In women from 45 to 59 years old (average age according to the World Health Organization age classification 2023) with a body mass index (BMI) above 25 kg/ m2 living in the Marhamat district of the Andijan region, markers of carbohydrate metabolism (serum glucose - fasting and postprandial, glycosylated hemoglobin and urine glucose) and lipid metabolism - total cholesterol (OH), triglycerides (TG), lipidogram (low density lipoprotein cholesterol - very low density lipoprotein LDL cholesterol – VLDL cholesterol, the atherogenicity coefficient is significantly higher, and high-density lipoprotein cholesterol - HDL cholesterol is significantly lower than in women with normal body weight. Correlation analysis revealed a significant positive relationship between age, BMI, KA, and serum glucose levels. The assessment of markers of carbohydrate and lipid metabolism should be included in the list of mandatory examinations of middle-aged women and should be strictly individual, based on clinical and anamnestic data. There is a correlation between the progression of carbohydrate metabolism disorders and changes in lipid metabolism in the examined women. The population should be widely informed about the risk factors for the development of type 2 diabetes mellitus, as well as the progression of complications of this disease.

Keywords: diabetes mellitus, lipid metabolism, glucose, glycated hemoglobin, insulin, body mass index, carbohydrate metabolism, atherogenic index, abdominal index.

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Introduction

Relevance : The term “Diabetes mellitus”, as defined by the World Health Organization (WHO), means a metabolic disorder of multiple etiology characterized by chronic hyperglycemia with impaired metabolism of carbohydrates , fats and proteins as a result of impaired insulin secretion and / or insulin action. Diabetes is the only non-communicable disease (meaning particularly dangerous infections – plague, smallpox, etc.) brought under the control of the United Nations (UN)

Diabetes mellitus (DM) is type 2, the most common endocrine disease, and poses a serious medical and social problem due to the widespread progressive increase in morbidity, chronic course and high frequency of disabling complications [1; 4]. According to forecasts, © 2011-2019 Science for Education Today (until 2018: Bulletin of Novosibirsk State Pedagogical University) Science for Education Today 2019, volume 9, No. 1 http://sciforedu.ru ISSN 2658-6762 210 by 2040, their total number will reach 642 million [4]. Every 6 seconds. One person in the world is dying from diabetes mellitus and its complications.2

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1 Atlas of diabetes IDF. 7th ed. 2015 [Electronic resource]. URL: http://www.diabetesatlas.org (date of access: 09.12.2018) 2 Ibid. 3 Petri C., Stefani L., Bani V., Mascherini G., Francine L., De Angelis M., Galant G. Life style and nutrition habits in type 2 diabetes [Electronic resource]. URL: https://www.researchgate.net/publication/278024473 (date of application: 09.12.2018)

Changes in lipid metabolism and body weight have a huge impact on carbohydrate metabolism . Currently, among the leading causes of carbohydrate metabolism disorders, an unhealthy lifestyle is distinguished, in particular, poor nutrition, low motor activity, emotional stress, etc.3 [27; 33; 36; 38]. This prompted the development of rules for behavioral therapy for people with carbohydrate metabolism disorders, which include 7 basic principles: 1) healthy diet; 2) physical activity; 3) blood glucose monitoring; 4) taking medications;5) stress prevention; 6) risk reduction; 7) proper behavior in case of illness [17; 21; 23; 28; 37; 39; 42]. The most common violation of carbohydrate metabolism is hyperglycemia, which is characterized by a persistent increase in blood glucose levels (above 6.1 mmol/l on an empty stomach in venous blood) and is one of the symptoms of type 2 diabetes mellitus.

Objective

To assess women's awareness of the importance of carbohydrate and lipid spectrum disorders as a risk factor for diabetes mellitus in women living in the Marhamat district of the Andijan region

Materials and Methods

280 women aged 45 to 59 years were included in the study, the average age was 47.0±2.26 [Iu 45.5; 95%CI 41.6-46.5] years.

The examined women were interviewed and interviewed on the basis of a special questionnaire compiled by endocrinologists of our department. Special attention was paid to the observance of the circadian rhythm and diet of the surveyed women. Based on anthropometric data (weight and body weight), the body mass index (BMI) was determined according to the classification of overweight in adults depending on BMI according to WHO. 1997 ,; 16- 18.5 kg/m2 underweight , norm 18.5-24.9 m/kg 2, overweight 25- 29.9 kg/m2, obesity of the 1st degree 30- 34.9 kg/m2, obesity of the 2nd degree 35- 40 kg/m2 , 40 kg/m2 and more obesity of the 3rd degree , abdominal obesity according to WHO with the calculation of the ratio of waist circumference (FROM) to hips (ABOUT) measured in centimeters FROM and BMI (more than 0.85 and 30 kg/ m2, respectively, in women is considered abdominal obesity) , glucose levels per lean, insulin, glycated hemoglobin , levels of total cholesterol (OHC), triglycerides (TG), high-density lipoproteins (HDL), low-density lipoproteins (LDL) , very low density lipoproteins (VLDL) in venous blood on the stomach . The atherogenicity index (IA) was calculated,

according to the formula KA = (total cholesterol – HDL/HDL) the coefficient norm is -3.0

Results and Discussion

The work was carried out from 2021-2023

on the basis of clinics of the Andijan State Medical Institute. The analysis of the results of the survey of women showed: 65 % of women were not aware of the importance of the influence of body weight and disorders of carbohydrate and lipid metabolism on the development and progression of diabetes mellitus and complications , 68% of the surveyed did not pay attention to the observance of circadian rhythm and diet (late sleep , time and quality of sleep, late breakfast). Overweight was detected in 90 women (32%), 40 women (15%) were obese, and 20 (8% of women) had a body weight deficit. Among 90 overweight women, 75 had blood glucose levels of 5.2 - 5.9 mmol/l, 9 women had 6.0– 6.9 mmol/L, glycated hemoglobin 6.5 - 6.7 and 6.8 – 7.0%, respectively. In 65 % of the examined women , HDL values on the lipidogram were below the standard values . Of the 40 obese patients (BMI> 30 kg/m2), 16 (40%) were women. Patients with high BMI, in comparison with the control group, had statistically significantly high levels of LDL cholesterol and significantly higher levels of insulin (norm 3.0- 25.0 µed/l in adults) and glycated hemoglobin in the blood , as well as relatively high total cholesterol (4.97±0.43mmol/l vs 3.38±0.32mmol/l; P=0.05) and TG (2.03±0.30mmol/l vs 0.94±0.10mmol/l; P=0.05), as well as higher IA (3.33±0.27 versus 1.91±0.35; P=0.01). Whereas the levels of HDL-C (1.13±0.03mmol/l) were significantly lower than in the group without impaired carbohydrate metabolism. The content of VLDL cholesterol in women with elevated BMI was correspondingly elevated (2.20±0.21mmol/l; P=0.14).

Conclusions

1. Women with elevated BMI and abdominal index at the age of 45-59 years living in the Marhamat district of the Andijan region had impaired fasting glycemia, glycated hemoglobin, as well as the values of OHC, TG, CSLPNP, CSLPNP and IA were significantly higher, and CSLPVP was significantly lower than in women with normal body weight.
2. The level of AI in the blood is associated with older age, increased BMI and the presence of carbohydrate metabolism disorders, a correlation analysis revealed a significant positive relationship between age, BMI and AI. Assessment of lipid metabolism indicators should be included in the list of mandatory examinations of patients with impaired carbohydrate metabolism.
3..Women should be informed about the negative impact of circadian rhythm disorders and diet on carbohydrate and lipid metabolism, which are predictors of the development of type 2 diabetes and trained in measures to prevent the progression of complications.

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