RISK ASSESSMENT FOR DIABETES MELLITUS TYPE 2

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ABSTRACT

Introduction : Diabetes mellitus type 2 is a metabolic disease with a complex etiology that occurs as a result of the interaction of genetic factors and environmental factors. It is characterized by insulin deficiency or insulin resistance and hyperlipidemia. Risk factors include: obesity , physical inactivity, genetic factors, chronic stress, improper diet, harmful habits, other aging factors.

Aim: The main objective of this research is to determine the existence of risk factors for the occurrence of type 2 diabetes mellitus in individuals who are committed systematic medical examinations . Depending on the results to be offered appropriate preventive measures.

Material and Methods : Create a cross-sectional study, which included 156 randomly selected respondents of different ages and of both sexes who are committed systematic medical examinations. The study used data from anthropometric measurements , body height, body weig , which is calculated by body mass index (BMI) data from a dedicated questionnaire consisted of 10 questions, divided into general and special part. Survey questions addressed the special part of the representation type 2 diabetes mellitus in closer and more distant relatives , physical activity and nutrition respondents . The risk for the occurrence of diabetes mellitus type 2 is assessed on the basis of body mass index and data from the special part of the questionnaire.

Results and Discussion: In the majority of respondents body mass index (BMI) ranged frame 25-30 , which means the state before of growing and is a significant risk factor for the occurrence of Diabetes mellitus type 2 in that group were 97 respondents or 62.18% of the total, of which 75 or 48.08 % were men and 10 or 14,10 % were women . The state of growing (BMI>30) were 14 or 8.97 % of the total respondents, 10 or 6,41% were men and 4 or 2.56% were women. Genetic predisposition to type 2 diabetes mellitus were 27 or 17,31 % of the total number of respondents, in terms of close relatives (parents , brothers , sisters) had 18 respondents or 11,54 %, and compared to more distant relatives (grandmother, grandfather, uncle, aunt) 9 or 5.77 % of the total number of respondents. Analyzing risk factors for diabetes mellitus type 2 estimated that the majority of respondents, 111 or 71.15 % were risk-free at the time of the survey, and some degree of risk were 45 or 28.85 % of the total number of respondents . Of those with increased risk were easily 31 or 19.87 %, moderate 7 or 4,49%, high 7 or 4,49%, while respondents with very high risk of developing the disease was gone.

Conclusion : The appropriate assessment of risk factors for getting diabetes mellitus type 2 gives relevant facts to foster a healthy lifestyle and early diagnosis and treatment of this disease.

Keywords: Diabetes mellitus, risk factors , assessment, prevention , treatment

Introduction: Diabetes mellitus is a disease of the modern age, sickness of the civilized world in the years to come it will be even more widespread, according to the latest World terminology diabetes or diabetes already considered state of the body, because every diabetic can regularly and without disabilities to perform daily tasks and activities as successfully as conditionally healthy people around him. All this can be up and the fact that it really tests show that the percentage of people with diabetes every day, unfortunately, is growing upwards. It is estimated that today 246 million people, almost 6% of the world population has Diabetes mellitus. This figure is expected to rise to 380 million by 2025, which will make diabetes one of the greatest medical challenges of the 21st - century. At least 50% of all people with diabetes symptoms that have not emphasize and do not seek medical care because they are registered as underdiagnosed (Institute of Public Health, Sk., 2010). In Macedonia Diabetes mellitus is one of the more common diseases and

occurs in about 6% of the population. The number of registered patients with diabetes who are on insulin therapy in the country is 36,230 of which 2,230 persons with type 1 diabetes and about 34,000 with type 2 diabetes.

According to data from the International Federation and diabetes data from the National Diabetes Register Macedonia incidence of the disease is 6.9%. The total number of people with diabetes is 119.200 (Institute of Public Health, Sk., 2010).

According to the World Health Organization global diabetes causes death of 3.8 million people that is equal to more than 6% of total mortality in the world. Every 10 seconds a person dies from diabetes-related illness. Diabetes globally is the fourth main cause of death in developed countries, and as epidemic spreads in countries in transition and developing countries. Direct health care costs for diseases associated with diabetes ranges from 2.5% to 15% of the annual health budget of the country depending on local diabetes prevalence and complexity of available treatment (WHO, 2009)). Today most endocrinologists / diabetes specialists define diabetes as follows: disease with complex and heterogeneous syndrome etiopathogenetic mechanism of occurrence, with hyperglycemia dominant biochemical phenomenon that is followed by disorder of lipid metabolism and proteins, and the clinical picture is dominated polydipsia, polyuria , loss of weight and general fitness. This condition, because longer causes damage to the small and large arterial blood vessels (micro and macroangiopathy) and has resulted in a loss of function or a high degree of damage to important organs and systems (blindness, uremia, gangrene, angina pectoris, myocardial infarction etc.. (Bogoev 2008), American Diabetes Association, 2003 Serafimovski, 2003, Milenkovic, 2010)

According to the World Health Organization Diabetes mellitus is a chronic progressive disease characterized by hyperglycemia and other biochemical production disruptions due to improper or inadequate action of insulin that controls the metabolism of glucose, fat and protein (WHO,2009).

Diabetes mellitus type 2 or insulin-independent diabetes - occurs in the later years of life and mostly unknown etiology. There is ample evidence that this type has associated with heredity. This type of diabetes occurs when the pancreas still secreted insulin but in insufficient quantity secreted insulin or does not produce the expected effects. In most cases, the level of glucose in the blood can be reduced by diet or diet and tablets, although sometimes it is necessary to enter therapy and insulin. The primary treatment of type 2 diabetes involves the application of a healthy lifestyle. It includes healthy eating, regular physical activity and reduce risk factors like obesity and smoking;

Glucose (down glucose) is a fundamental parameter for diagnosis of diabetes and impaired fasting. Normal fasting blood glucose range from 3,9- 6,1 mmol / l. Plasma or serum from venous blood take precedence over the determination of full blood.

Prevention of type 2 diabetes mellitus is primarily aimed at people who are in a state of impaired fasting. Impaired fasting is very widespread and it is considered that this state has about 40% of people aged 40-74 years. People with impaired fasting are at high risk for developing diabetes and cardiovascular disease. The best way to prevent and relieve the symptoms of a healthy lifestyle - proper diet, regular physical activity, taking regular treatment, systematic regular check-ups.

Results and discussion: The majority of respondents were aged less than 45 years, represented by 112 respondents or 71.80%, while older than 55 years were 11 respondents or 7,05. %. According to sex, male respondents were represented by 77.56% and the female with 22:44% of the total number of respondents.

In the majority of respondents body mass index (BMI) ranged frame 25-30 , which means the state before of growing and is a significant risk factor for the occurrence of Diabetes mellitus type 2 in that group were 97 respondents or 62.18% of the total, of which 75 or 48.08 % were men and 10 or 14,10 % were women . The state of growing (BMI>30) were 14 or 8.97 % of the total respondents, 10 or 6,41% were men and 4 or 2.56% were women (table 1).

Table 1. Body mass index (BMI) of respondents

BMI	<25				25 – 30				>30				Total	%
	M	%	F	%	M	%	F	%	M	%	F	%		
<45	27	17.31	10	6.41	52	33.33	12	7.70	10	6.41	1	0.64	112	71.80
45 – 54	5	3.21	1	0.64	17	10.90	7	4.48	0	0	3	1.92	33	21.15
55 – 64	1	0.64	0	0	6	3.85	1	0.64	0	0	0	0	8	5.13
>64	1	0.64	0	0	0	0	2	1.28	0	0	0	0	3	1.92
Total	34	21.80	11	7.05	75	48.08	22	14.10	10	6.41	4	2.56	156	100

Genetic predisposition to type 2 diabetes mellitus were 27 or 17,31 % of the total number of respondents, in terms of close relatives (parents , brothers , sisters) had 18 respondents or 11,54 %, and compared to more distant relatives (grandmother, grandfather, uncle, aunt) 9 or 5.77 % of the total number of respondents.

Of the 16 individuals who had increased blood glucose 3 or 18.75% people lived in rural areas, and 13 people or 81.25% in urban areas. It found that 70% of respondents were non-smokers and 30% smokers. Of the 16 individuals who had increased blood glucose 11 people or 68.75% were non-smokers and 5 persons or 31.25% smokers.

In terms of physical activity, the most active were younger than 45 years (55.77%), but with age physical activity gradually decreased, were smaller than those in the age group 45-54 years where the percentage of physical activity was 15,38%, for the people older than 55 years was reduced to 2.57%. At all diet with fruits and vegetables daily is present in a higher percentage.

Increased amount of sugar in the blood had 10.25% or 16 respondents. Of these, according to the assessment of risk of Diabetes mellitus type 2, 5 persons aged <45 years were in easily increased risk of developing this disease. Since the second age group 45-54 years 1 person had a low risk of developing type 2 diabetes face increased risk of easy, moderate and 1 person 4 persons at high risk for developing type 2 diabetes mellitus The third age group 55-64 years only one person had a high risk of developing type 2 diabetes mellitus in the age group> 64 years, one person had a moderate risk, and two people were in a high risk of developing diabetes mellitus type 2 (Table 2).

Table 2 . Increased glycemia of respondents

Increased glycemia	<45	%	45-54	%	55-64	%	>64	%	Вк.	%
Yes	107	68.60	26	17.31	7	4.49	0	0	140	89.74
No	5	3.20	7	3.84	1	0.64	3	1.92	16	10.26
Total	112	71.80	33	21.15	8	5.13	3	1.92	156	100

Analyzing risk factors for diabetes mellitus type 2 estimated that the majority of respondents, 111 or 71.15 % were risk-free at the time of the survey, and some degree of risk were 45 or 28.85 % of the total number of respondents . Of those with increased risk were easily 31 or 19.87 %, moderate 7 or 4,49%, high 7 or 4,49% (table 3)

Table 3. Risk for development of diabetes mellitus type 2 of respondents

Risk	<45	%	45-54	%	55-64	%	>64	%	Total	%
low	95	60.90	14	8.97	2	1.28	0	0	111	71.15
easy increased	16	10.26	11	7.05	4	2.57	0	0	31	19.87
moderate	1	0.64	4	2.565	1	0.64	1	0.64	7	4.49
high	0	0	4	2.565	1	0.64	2	1.28	7	4.49
Very high	0	0	0	0	0	0	0	0	0	0
Total	112	71.80	33	21.15	8	5.13	3	1.92	156	100

Conclusions: Diabetes mellitus as one of the most common endocrine disorders tends to increase as a constant due to the modern lifestyle, genetic factors and environmental factors; To reduce the risk of diabetes need to practice a healthy diet, regular physical activity, maintaining a normal body weight and avoiding smoking (to reduce the risk of cardiovascular disease); The results of this study justify preventive measures in terms of changing the way of life in all age groups.

References:
1. American Diabetes Association. Experts Urge Immediate Action to Prevent Type 2 Disease. 63rd Annual Scientific Sessions, Publication date 15. 06. 2003
2. Bogoev,M.: Contemporary dijabetology, Skopje, 2008
3. Institute of Public Health of the Republic of Macedonia, Skopje, 2010
4. Jurnal of Health Siences, "The presence of risk factors for diabetes mellitus type 2 in patients of family practice medicine", Jusupović F. and others, Faculty of Healt Studies, University of Sarajevo, Volume 1, Number 1, April 2011
5. Milenkovic, T .: Modern aspects of diabetes and contemporary therapy, University Clinic of Endocrinology and Metabolism Diseases, Skopje, 2010
6. Serafimovski, V.: Internal Medicine-Volume 1, "Macedonska riznica" (2003), Kumanovo
7. World Health Organisation: Definition, Diagnosis and Classification of Diabetes Mellitus and its Complications. Part 1:Diagnosis and Classifications of Diabetes Melitus, Geneva, Department of Noncommunicable Disease Surveillance, 2009.