

Causes of Type II Diabetes

Name:

Institution:

Causes of Type II Diabetes

Diabetes is one of the most common diseases that modern people suffer from. It is a medical condition in which a person's cells cannot properly absorb blood sugar, which is an important element for their functioning, due to problems with insulin. There are two main types of diabetes. When a person suffers from the first type, his or her body does not produce insulin at all, while the second type leads to the body's inability to correctly respond to the insulin that it generates. While type 1 diabetes is usually a consequence of solely genetic factors, the causes leading to the second type are much more numerous and varied.

The first category of factors that cause the disease is those of a genetic nature. Similarly to the case with the first type of diabetes, a person has a much higher probability of getting sick if the disease has ever occurred in the medical history of his or her family. The existing studies show that in the case of identical twins, the chance that another twin will also develop type II diabetes over time is about ninety percent. If one of the parents is afflicted with the disease, the probability that the children will be sick is approximately forty percent. It is even higher if both parents have diabetes (Spero, 2016). Studies prove that, alongside numerous other illnesses, type II diabetes is substantially related to genetics. At the same time, scientists have not yet managed to determine which specific genes cause it (Leontis et al., 2017). Therefore, although certain genetic factors significantly increase the likelihood of type II diabetes, it is not the major causative agent of the disease.

While the genetic factors are objective and do not depend on a person's behavior and will, the second group of causes leading to the development of type II diabetes includes those directly related to the food a person consumes. The specificity of nutrition is one of the most

common causes of the disease. The observations of scientists show that type II diabetes has begun to spread rapidly simultaneously with the development of modern agriculture (Spero, 2016). To a large extent, it has been linked to the widespread introduction of refined products containing excessive amounts of sugars and a low extent of fiber. Refined foods stimulate the lower intestine much less than conventional products, due to which a human body begins to produce less insulin. Another group of products that stimulates the development of type II diabetes is high-fat foods. The fat cells that are deposited in the human body as a result of consuming such foods produce certain chemicals leading to inflammation and, as a consequence, insulin resistance (Leontis et al., 2017). Thus, from a nutritional point of view, the main factor that increases the risk of diabetes is the consumption of low-fiber refined foods and excessively fat products.

Other factors that are directly related to the previous category are those that the lifestyle of a person causes. For example, a sedentary lifestyle is one of the main factors leading to obesity, which in turn plays a significant role in the development of type II diabetes. Moreover, exercising contributes to the growth of a person's muscular mass, which provides better processing of insulin by the body. Another element of an individual's everyday life that affects the negative dynamics of the disease is one's sleep schedule. According to existing studies, sleep deprivation leads to an increase in insulin resistance. Moreover, sleeping problems may be not only the cause of diabetes, but also one of its symptoms, which shows a correlation between these two aspects (Spero, 2016). Finally, another factor that a person encounters on a daily basis, and which puts him or her body under the direct threat of diabetes, is stress. The body of each person has a mechanism for stress responses, when various hormones begin to act. They cause a

number of specific reactions, such as the increasing of blood pressure, blood sugar, and insulin resistance (MNT Editorial Team, 2016). Therefore, a whole combination of elements that compose lifestyles, such as exercise, sleep, and daily stress, have a negative impact on the dynamics of the occurrence and development of diabetes.

Another category of factors that have a detrimental effect on human health and put it under the direct threat of type II diabetes are the objective phenomena that do not depend on the actions and will of the individual and which he or she cannot influence. It is possible to group these aspects into one common category of external factors. The first of them is the environmental impact. Among all the elements of external exposure, the most harmful one is chemical pollution. Certain classes of chemicals that belong to the category of persistent organic pollutants increase insulin resistance of the body. Existing studies have shown that having a high content of such chemicals in an organism is typical for most people who have type II diabetes (Spero, 2016). Another external factor that influences the development of diabetes is certain types of intestinal bacteria. Like pollutants, they enter the human body from the environment, and can both stimulate certain internal processes or be a hindrance to them. Certain types of bacteria can affect the development of diabetes either directly, by encouraging insulin resistance, or indirectly, by leading to obesity. These facts demonstrate that external factors are no less significant causes of diabetes than internal ones.

All the factors mentioned above affect the development of type II diabetes. However, it is necessary to understand that, despite their diversity, they influence the human body in a similar way. Thus, the common feature that unites all of these aspects is the fact that, in one way or another, they stimulate insulin resistance. This term refers to the situation in which the human

body cannot use the insulin hormone properly, which means that it does not participate in the absorption of blood sugar (MNT Editorial Team, 2016). The organs of people who have type II diabetes produce insulin, but it cannot fulfill its direct function of transporting glucose to the cells of the body. Because of this, glucose accumulates in the blood of people instead of getting into the cells where it should be. Insulin resistance is the first stage through which the body passes if type II diabetes develops. Since the internal organs do not receive enough glucose, the body reacts by increasing the levels of insulin. However, the pancreas, which is the major organ producing insulin, does not contain the endless resources of this hormone; soon the stocks become exhausted, and the amount of insulin that the body produces decreases. Medicine denotes this situation with the term "insulin deficiency" (Spero, 2016). Ultimately, such a reaction of the body is a key element that leads to the development of type II diabetes.

Summing up, the factors causing type II diabetes are numerous and various. It is possible to divide them into four categories. The first of them unites genetic aspects, due to which the disease often passes from a parent to a child, and the chance of a person getting sick is much higher if one of his or her relatives has a medical history of diabetes. The second category of factors includes the person's gastronomic habits. The excessive consumption of refined foods, small amounts of fiber, and saturated fats prevent the work of the lower intestine, resulting in the decrease of insulin concentration in the human body. The third group of factors is those relating to the lifestyle of the individual. The sedentary lifestyle that leads to obesity, sleeping problems and daily stresses stimulate the body's protective responses by increasing its resistance to insulin. Finally, the fourth group of factors includes the elements of the environment affecting the human body, such as persistent organic pollutants and intestinal bacteria. All of these factors stimulate

the increase in insulin resistance which, over time, leads to the development of type II diabetes.

References

- Leontis, L. M., & Hess-Fischl, A. (2017, April 7). Type 2 Diabetes Causes: Genetics and Lifestyle Choices Play a Role. Retrieved June 12, 2018, from <https://www.endocrineweb.com/conditions/type-2-diabetes/type-2-diabetes-causes>
- Spero, D. (2016, June 29). What Causes Type 2 Diabetes? Retrieved June 12, 2018, from <https://www.diabetesselfmanagement.com/blog/causes-type-2-diabetes/>
- The MNT Editorial Team. (2016, January 05). Type 2 Diabetes: Causes and Symptoms. Retrieved June 12, 2018, from <https://www.medicalnewstoday.com/info/diabetes/type2diabetes.php>