



SYMPTOMS AND THEIR RELATIONSHIP IN CHILDREN AND ADOLESCENTS WITH DIABETES

Xamidova Shaxnoza

G'ulomova Feruza G'ayratovna

*Teachers of the Technical College of Public
Health named after Abu Ali ibn Sino*

Annotation: This article presents information about symptoms and their interrelationship in children and adolescents with diabetes.

Key words: diabetes, vascular complications, damage to organ systems, gestational diabetes, insulin

Diabetes mellitus (DM) is a chronic metabolic disease characterized by persistent hyperglycemia. This may be due to impaired insulin secretion, resistance to peripheral insulin action, or both. In patients with diabetes, chronic hyperglycemia, together with other metabolic diseases, can damage various organ systems, which leads to the development of disability and life-threatening complications, the most important of which are microvascular (retinopathy, nephropathy, and neuropathy) and macrovascular complications, which account for 2% of death. - leads to a 4-fold increase - the risk of cardiovascular diseases has increased by a factor of one. This exercise examines the pathophysiology of QD and highlights the role of the professional team in its management. Diabetes mellitus (DM) is a chronic metabolic disease characterized by persistent hyperglycemia. This may be due to impaired insulin secretion, resistance to peripheral insulin action, or both. According to the International Diabetes Federation (IDF), an estimated 415 million adults between the ages of 20 and 79 had diabetes in 2015. Diabetes continues to be a burden on global health, as the number is expected to rise to another 200 million by 2040. In patients with diabetes, chronic hyperglycemia, together with other metabolic diseases, can damage various organ systems, which can lead to the development of disability and life-threatening complications, the most important of which are microvascular diseases (retinopathy, nephropathy and neuropathy) and macrovascular diseases. complications that increase the risk of cardiovascular diseases by 2-4 times. In this review, we provide an overview of the pathogenesis, diagnosis, clinical presentation, and treatment of diabetes. DM is divided into three types according to etiology and clinical presentation: type 1 diabetes, type 2 diabetes, and gestational diabetes. (HQD). Other less common types of diabetes include monogenic diabetes and secondary diabetes. Diabetes mellitus (DM) is a chronic metabolic disease characterized by persistent



hyperglycemia. This may be due to impaired insulin secretion, resistance to peripheral insulin action, or both. In patients with diabetes, chronic hyperglycemia, together with other metabolic diseases, can damage various organ systems, which leads to the development of disability and life-threatening complications, the most important of which are microvascular (retinopathy, nephropathy, and neuropathy) and macrovascular complications, which account for 2% of death. - leads to a 4-fold increase - the risk of cardiovascular diseases has increased by a factor of one. This exercise examines the pathophysiology of QD and highlights the role of the professional team in its management. Type 1 diabetes (QD1) accounts for 5-10% of QD cases and is characterized by the autoimmune destruction of insulin-producing beta cells in the pancreatic islets. The result is an absolute lack of insulin. A combination of genetic susceptibility and environmental factors such as viral infection, toxins, or certain dietary factors have been postulated to trigger autoimmunity. Type 1 diabetes is most common in children and adolescents, but it can develop at any age. Hyperglycemia first detected during pregnancy is classified as gestational diabetes mellitus (GDM), also known as hyperglycemia during pregnancy. Although it can occur at any time during pregnancy, HDM usually affects pregnant women in the second and third trimesters. According to the American Diabetes Association (ADA), HDM complicates 7% of all pregnancies. Women with HQD and their offspring are at increased risk of developing type 2 diabetes in the future. HQD can be complicated by arterial hypertension, preeclampsia and dropsy, and can also lead to an increase in the number of surgical interventions. The fetus may have increased weight and size (macrosomia) or congenital anomalies. Even after birth, these babies may experience respiratory distress syndrome and later childhood and adolescent obesity. Older age, obesity, excess weight gain during pregnancy, congenital anomalies in previous children, stillbirth or A family history of diabetes is a risk factor for developing HQD. Secondary diabetes is caused by other diseases affecting the pancreas (such as pancreatitis), hormonal disorders (such as Cushing's disease), or drugs (such as corticosteroids). With lifestyle changes and increasing obesity, the prevalence of QD has increased worldwide. In 2017, the global prevalence of QD was 425 million people. According to the International Diabetes Federation (IDF), in 2015, approximately 10 percent of the US population had diabetes. 7 million of them have not been identified. QD prevalence also increases with age. Approximately 25% of the population over 65 years of age has diabetes. In T1DM, there is a cell-mediated autoimmune destruction of pancreatic beta cells. QD1 has a strong genetic predisposition. Major histocompatibility complex (MHC), also known as human leukocyte antigens (HLA), accounts for approximately 40-50% of T1DM familial aggregation. Important determinants are HLA class II gene polymorphisms



encoding DQ and DR4-DQ8, while DR3-DQ2 is found in 90% of DM1 patients. Elimination rates are usually higher in children and faster in adults. Autoantibodies against islet cells, insulin, glutamic acid decarboxylase-65 (GAD-65) and zinc transporter 8 (Zn T8) can be detected in the blood serum of such patients. These antibodies weaken over time and are routinely used for diagnosis. is not diagnostically clear, especially after the first year. With the progressive destruction of beta cells, there is almost no insulin secretion. Such patients are usually not obese. They are more likely to develop other autoimmune diseases such as Addison's disease, Graves' disease, Hashimoto's thyroiditis, and celiac disease. A subset of T1DM that is not associated with autoimmunity to insulin and is not related to the above HLA is called idiopathic T1DM. This disease is more common in Africans and Asians and presents with episodic diabetic ketoacidosis (DKA). T2DM is a condition of insulin resistance accompanied by beta-cell dysfunction. Initially, there is a compensatory increase in insulin secretion, which keeps glucose levels within normal limits. As the disease progresses, beta cells change and insulin secretion cannot maintain glucose homeostasis, which causes hyperglycemia. Most patients with type 2 diabetes are obese or have a higher percentage of body fat distributed mainly around the abdomen. This adipose tissue itself contributes to insulin resistance through various inflammatory mechanisms, including increased FFA and adipokine dysregulation. Lack of physical activity before HDQ also increases the risk of developing type 2 diabetes in people with hypertension or dyslipidemia. Emerging evidence suggests a role for abnormal incretin biology with adipokine dysregulation, inflammation, glucagon-like peptide-1 (GLP-I) or incretin resistance, hyperglucagonemia, increased renal glucose reabsorption, and decreased levels of incretins such as gut microbiota. A diet high in saturated fat, refined carbohydrates, high fructose corn syrup, and fiber and monounsaturated fat should be encouraged. 90 to 150 minutes of aerobic exercise per week is also beneficial. Weight loss is the main goal in obese patients with type 2 diabetes. If adequate glycemia cannot be achieved, metformin is the first-line therapy. Metformin is followed by many other treatments such as oral sulfonylureas and dipeptidyl peptidase-4 (DPP-4) inhibitors. There are glucagon-like peptide-1 (GLP-I) receptor agonists, sodium glucose co-transporter-2 (SGLT2) inhibitors, pioglitazone, especially if the patient has fatty liver disease, alpha-glucosidase inhibitors, and insulin. Recent studies have shown that the SGLT2 inhibitor empagliflozin (EMPA) and the GLP-1 receptor agonist liraglutide reduce cardiovascular disease (CVD) and death. Therefore, in patients with cardiovascular diseases, these drugs should be considered next. For patients with type 1 diabetes, the basal-bolus insulin regimen is the main method of therapy. Also, insulin pump therapy is a smart choice. Hypoglycemia is associated with increased mortality, so



non-hypoglycemic therapies such as DPP-4 inhibitors, SGLT-2 inhibitors, GLP-I receptor agonists, and pioglitazone with metformin should be preferred. Other benefits of SGLT-2 inhibitors and GLP-I receptor agonists are reductions in body weight, blood pressure (BP), and albuminuria. In most patients, the target Hb A1C level should be less than 7% to reduce microvascular complications. Also, the target blood pressure should be less than 130/85 mm Hg. Art. with preference for angiotensin-converting enzyme (ACE)/angiotensin receptor blocker (ARB) therapy. As recommended, fundus examination and urine albumin levels should be measured at least twice a year. The goal for a lipid panel should be an LDL-C of less than 100 mg/dL in the absence of atherosclerotic cardiovascular disease (CVD) or less than 70 mg/dL in the presence of CVD. The drug of choice is a statin because these drugs reduce cardiovascular disease and cardiovascular death. Consider adding ezetimibe and PCSK9 inhibitors to non-targeted CVD patients. Since the various complications and treatments are detailed in other StatPearls review articles, we have only outlined the principles of therapy. Diagnosis and treatment of type 2 diabetes is carried out by a professional team. Such patients should be referred to an ophthalmologist, nephrologist, cardiologist, and vascular surgeon as appropriate. In addition, patients should be aware of lifestyle changes that can help lower blood glucose levels. All obese patients should be encouraged to lose weight, exercise, and eat a healthy diet. Primary care providers and diabetes nurses should encourage all people with diabetes to stop smoking and avoid alcohol. Complications of diabetes are dangerous to health and life, and seriously reduce the quality of life.

REFERENCES:

1. Xamidova, M. N., I. F. Ismatova, J. Sh. Berdirov, G. Sh. Negmatova va A. T. Daminov. "SAXARNYY DIABET VA COVID-19." *Evrosiyo tibbiyot va tabiiy fanlar jurnali* 2, №. 13 (2022): 190-204.
2. Tahirovich, D. A., Burchaklar, S. J. A., Shuxratovna, N. G., Shuxratovna, S. G., & Zaynuddinovna, M. G. (2022). Qandli diabet bilan kasallangan bemorlarda COVID-19 KURSI. *Web of Scientist: International Scientific Research Journal*, 3(02), 73-76.
3. Tahirovich, D. A., Corners, S. J. A., Shuxratovna, N. G., Shuxratovna, S. G., & Zaynuddinovna, M. G. (2022). Qandli diabet bilan kasallangan bemorlarda COVID-19 KURSI. *Web of Scientist: International Scientific Research Journal*, 3(02), 73-76.