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Polish Forum for Prevention Guidelines on Diabetes: update 2017

Wytyczne Polskiego Forum Profilaktyki Chorób Układu Krążenia dotyczące cukrzycy: aktualizacja 2017

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NEW IN 2017, UPDATE OF POLISH FORUM FOR PREVENTION GUIDELINES ON DIABETES

1. Updated recommendations for the screening of diabetes
2. The role of glycated haemoglobin (HbA1c) in diagnosis of diabetes
3. Sodium-glucose co-transporter-2 (SGLT2) inhibitors or glucagon-like peptide 1 (GLP-1) agonists to be considered in patients with diabetes and cardiovascular disease (CVD)
4. New treatment goals

1. CRITERIA FOR THE DIAGNOSIS OF CARBOHYDRATE ABNORMALITIES

Diabetes mellitus [1–3]:

— A random glycaemia ≥ 11.1 mmol/L (200 mg/dL) in patients with the symptoms of hyperglycaemia (excessive thirst, polyuria, weakness, decreased body mass) or
— A fasting glycaemia ≥ 7.0 mmol/L (126 mg/dL) in two measurements irrespective of the symptoms of hyperglycaemia or
— A glycaemia > 11.1 mmol/L (200 mg/dL) at 120 min after a 75-g oral glucose tolerance test (OGTT).

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Pre-diabetes [1–3]:

— Impaired fasting glucose*: 5.6–6.9 mmol/L (100––125 mg/dL) after overnight fast and < 7.8 mmol/L (140 mg/dL) at 120 min of OGTT
— Impaired glucose tolerance: 7.8–11.0 mmol/L (140––199 mg/dL) at 120 min of OGTT.

Diabetes in a patient treated with metformin because of prediabetes [2]:

— Glucose ≥ 11.1 mmol/L (200 mg/dL) in 120 min of OGTT provided the discontinuation of metformin for at least a week before the OGTT.

Diabetes based on HbA1c** [2]:

— Currently in Poland it is not recommended that HbA1c be used alone for the diagnosis of diabetes (no standardised method of determination and the threshold value of HbA1c).

**It is recommended that glucose concentration be determined in venous plasma in a laboratory covered by an external quality control. Assays performed using glucose meters should not be used for diagnostic purposes [2].*
***Since 2010, the American Diabetes Association (ADA) allows determination of HbA1c for the diagnosis of diabetes and pre-diabetes. HbA1c ≥ 6.5% ratio is considered as the threshold value for the diagnosis of diabetes; in turn, pre-diabetes is diagnosed when HbA1c is 5.7–6.4%.*

2. PREVALENCE

Currently, 390 million people worldwide have diabetes, and this figure will probably increase by another 200 million over the next 20 years. In Poland, diabetes has been diagnosed in about 2,100,000 people. Given the number of undiagnosed people in our country, this disease affects about three million people. The prevalence of diabetes among Polish adults is nearly 7% while impaired glucose intolerance is nearly 16%. In the age group 45–74 years, the prevalence of diabetes is approximately 16% in men and 12% in women [4].

3. DIABETES AND RISK OF CVD

Type 2 diabetes mellitus and type 1 diabetes mellitus with nephropathy increase the risk of atherosclerotic CVD — 2–3 fold in men and 3–5 fold in women. Prediabetes also contributes to the increased risk. Glycaemia after an OGTT is a better marker of CVD risk than fasting glycaemia. Type 2 diabetes mellitus and pre-diabetes are frequently associated with other modifiable atherosclerotic risk factors: arterial hypertension, lipid disorders, and obesity [1, 3, 5].

4. SCREENING

Screening for diabetes should be performed in women and men > 45 years of age, and irrespectively of age in patients with the following risk factors: overweight or obesity (body mass index ≥ 25 kg/m^2 and/or waist circumference; ≥ 80 cm in women, ≥ 94 cm in men), familial diabetes (parents or siblings), sedentary lifestyle, previous abnormal fasting glycaemia or glucose intolerance, dyslipidaemia (high-density lipoprotein cholesterol < 1 mmol/L [40 mg/dL] for both sexes and/or triglycerides ≥ 1.7 mmol/L [150 mg/dL]), arterial hypertension, CVD, cystic fibrosis (in patients ≥ 10 years old), and in women a history of pregnancy-induced diabetes, polycystic ovarian syndrome, and delivery of baby weighting > 4 kg [1–3, 5].

The first-line investigation should be the determination of fasting blood glucose levels. In patients with abnormal fasting glycaemia 5.6–6.9 mmol/L and in patients with normal blood glucose levels but with CVD, metabolic syndrome, glycosuria, in pregnant women and in the elderly an OGTT is recommended as an additional investigation*** [1, 3, 6].

Any patient with acute coronary syndrome (ACS), except for patients previously diagnosed with diabetes, should be subjected to OGTT not earlier than 4–5 days after the ACS [2, 3].

Screening should be conducted within the existing health care system by primary care physicians.

****Some international scientific societies recommend that patients with known CVD should have the screening started with both the total HbA1c and plasma glucose fasting, and in case of doubt, OGTT should be performed [6].*

5. THE EFFECTS OF GLYCAEMIC CONTROL

Successful treatment of type 1 diabetes mellitus, i.e. maintaining near-normoglycaemia, results in a 2-fold decrease in the risk of CVD morbidity and mortality and reduces the risk of the development and progression of diabetic retinopathy, nephropathy, and neuropathy. In subjects with type 2 diabetes a 1% reduction of HbA1c is associated with a 37% reduction in microangiopathic complications, a 14% reduction in myocardial infarction, a 12% reduction in stroke, a 16% reduction in heart failure, and a 21% reduction in diabetes-related death. In patients with type 2 diabetes lasting > 10 years with a high percentage of HbA1c, with CVD, or high cardiovascular risk, too strict metabolic control may increase the risk of death. In type 2 diabetes beneficial effects of metformin on the risk of CVD and death have been observed. In overweight or obese people with impaired glucose tolerance regular physical activity and weight reduction of 5–10% decreased the risk of developing type 2 diabetes by nearly 60% [1, 3, 5].

6. TREATMENT — EDUCATION, LIFESTYLE CHANGE

In people with diabetes and the pre-diabetic states, we recommended: education, implementation of intensive lifestyle changes (diet, regular physical activity, weight reduction, smoking cessation), and the control and treatment of other cardiovascular risk factors — hypertension and lipid disorders.

Physical activity is an integral part of diabetes management. In order to achieve optimal effect, physical activity

Table 1. Treatment goals of diabetic patients

Treatment goals of diabetic patients	Type 1	Type 2
HbA1c (%)*	≤ 7.0#	≤ 7.0**
Fasting and preprandial glucose level [mmol/L (mg/dL)]	4.4–6.1 (80–110)	–
Postprandial glucose level [mmol/L (mg/dL)]	< 7.8 (140)	–
Blood pressure [mm Hg]:		
Major criterion	< 140/85	
Specific criteria	< 130/80 in patients with type 1 diabetes mellitus and in selected patients with type 2 diabetes mellitus, e.g. younger patients at elevated risk for stroke, retinopathy, albuminuria	
	120/75–80 in younger type 1 diabetes mellitus patients (< 40 years of age) with persistent microalbuminuria	
	< 150/90 in patients > 80 years of age, unless renal impairment is present	
Total cholesterol [mmol/L (mg/dL)]	< 4.5 (175)	
LDL-C [mmol/L (mg/dL)]	< 1.8 (70) or a reduction of at least 50% if the baseline LDL-C is between 1.8 and 3.5 (70–135) — very high-risk patients	
	< 2.6 (100) or a reduction of at least 50% if the baseline LDL-C is between 2.6 and 5.1 (100–200) — high-risk patients	
HDL-C [mmol/L (mg/dL)]	> 1.0 (40) for men, > 1.3 (50) for women	
Non-HDL-C [mmol/L (mg/dL)]	< 2.6 (100) — very high-risk patients	
	< 3.3 (130) — high-risk patients	
Triglycerides [mmol/L (mg/dL)]	< 1.7 (150)	

#HbA1c < 6.5 for patients with low risk of hypoglycaemia; *Analytic method certified by National Glycohaemoglobin Standardisation Programme (NGSP); **HbA1c ≤ 6.5 in case of short lasting type 2 diabetes; HbA1c < 8.0% in patients with advanced age and/or with macrovascular complications of diabetes (myocardial infarction and/or stroke) and/or multiple comorbidities [2]; HDL-C — high-density lipoprotein cholesterol; LDL-C — low-density lipoprotein cholesterol

should be regular, preferably daily. The intensity of exercise should be determined by the physician on the basis of a complete clinical picture and the current lifestyle of the patient. Currently, it is recommended to have a minimum of 150 min of moderate to high intensity physical activity per week when no other contraindications occur [1–3].

7. TREATMENT — DIETARY RECOMMENDATIONS

The calorific value and composition of food should be taken into account: carbohydrates 40–50% (glycaemic index < 50), fats 30–35% (saturated fats < 10%, in patients with low-density lipoprotein > 2.6 mmol/L [100 mg/dL] < 7%, trans fats < 1%), and protein 15–20% of the caloric value. The recommended level of salt intake is 5–6 g/day (≤ 4.8 g/day in people with moderate hypertension, ≤ 4 g/day in patients with hypertension and nephropathy). It should be emphasised that the optimum proportions of macronutrients in the diet should be determined individually, taking into account the clinical aspects of the patient [1–3, 5].

8. TREATMENT — PHARMACOTHERAPY

Pharmacological treatment should be done under the supervision of physicians specialising in the treatment of diabetes. In the pharmacological treatment of hyperglycaemia in type 2 diabetes several factors should be considered, namely insulin resistance and insulin secretion disorders, fasting and postprandial glycaemia, and the progressive character of the disease [1–3, 5]. The drug of choice for initiation of pharmacotherapy in type 2 diabetes is metformin, while several options exist for the intensification of this treatment. SGLT2 inhibitors, particularly empagliflozin, or GLP-1 agonists, particularly liraglutide, should be considered in patients with CVD [5]. To achieve metabolic control, treatment with oral drugs should be intensified and if necessary followed by insulin therapy [1–3, 5].

Antiplatelet therapy (e.g. with aspirin) is not recommended for people with diabetes mellitus, who do not have CVD. All patients > 40 years of age and selected younger patients at elevated risk are recommended for statin therapy [5].

9. TREATMENT GOALS OF DIABETIC PATIENTS

In the management of diabetes all target values for carbohydrates, lipids, blood pressure, and body mass should be achieved. Treatment should be tailored to the patient's needs, taking into account hypoglycaemia risk and patient education. In some cases, achieving the therapeutic objective may be difficult, and these patients should strive to get as close to the presented goals of treatment as possible (Table 1) [1–3, 5].

10. CONTROL AND MONITORING

It is recommended that systematic glycaemic control be provided with HbA1c, which reflects the average blood glucose over the previous three months. An important part of diabetes treatment is self-control. The frequency of the recommended blood glucose monitoring depends on diabetic treatment. HbA1c should be performed at least once a year in patients with stable course of diabetes, who achieve treatment goals, or once every three months when treatment goals are not achieved and/or in the case of a change of treatment [1–3, 5].

Blood pressure should be measured during every routine follow-up visit [1–3].

In type 2 diabetes it is recommended to determine lipid values at the moment of diagnosis, and then once a year in the case of normolipidaemia or more frequently if necessary until the target values are achieved. In type 1 diabetes, lipid levels should be monitored every 2–5 years depending on CVD risk. In diabetic patients, the control should include a full lipid profile [1, 2].

During every follow-up visit body mass should be measured, self-monitored preprandial and postprandial glycaemia should be checked, and patients should receive education and be motivated to comply with treatment and lifestyle changes [1, 2].

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