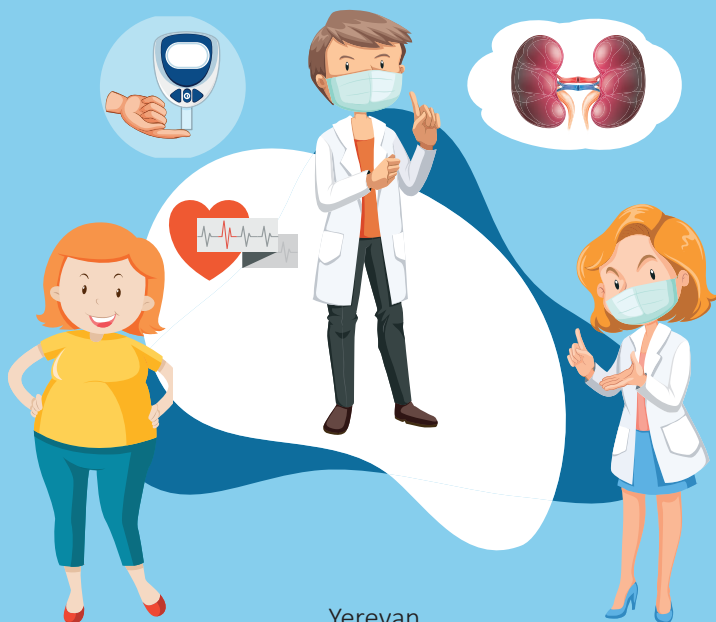




WORLD **DIABETES** FOUNDATION



PREDIABETES AND DIABETES



Yerevan
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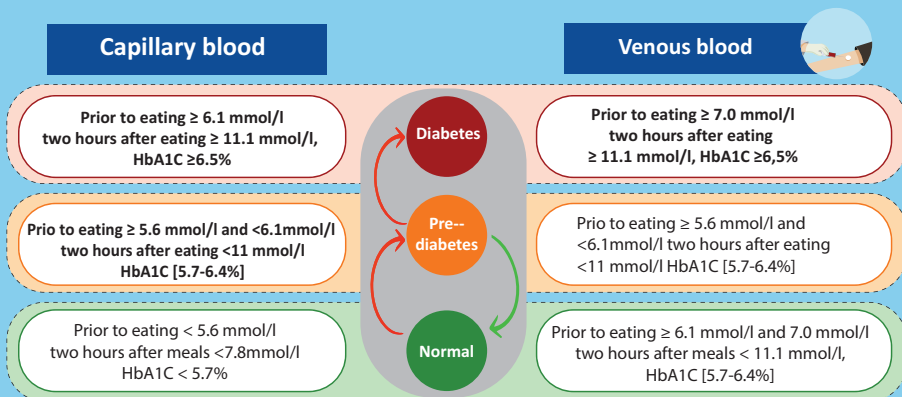
This handbook is designed for those with prediabetes and diabetes, as well as for endocrinologists, family medicine doctors, therapists, neurologists, cardiologists and ophthalmologists.

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PREFACE

Diabetes is one of the most common chronic diseases. The number of people with diabetes is increasing year by year. Diabetes is a serious threat with its many complications, which can not only cause disability, but is also life-threatening.

Considering the importance of the problem, the Armenia's Ministry of Health approved the National Strategy for the prevention of diabetes mellitus and its complications and the 2022-2026 action plan for its implementation. The strategy emphasizes not only early detection and prevention of diabetes and its complications, but also early detection of prediabetes (metabolic syndrome) in people at risk groups.



According to the International Diabetes Federation, learning is the basis for treatment. An effective way to detect and manage prediabetes and diabetes at an early stage is to educate people at risk groups through Diabetes Schools. Since 2017, the “Diabetes School” educational courses have been implemented in Armenia, which provide the needed information on diabetes management and self-monitoring.

What do the Diabetes schools provide?

At the Diabetes Schools participants get the needed information on the following:

- Diabetes prevention
- Diabetes development mechanisms
- Types of diabetes
- Necessary periodic checkups
- A healthy diet
- Physical activity
- Newest methods of diabetes management.



Is diabetes curable, and is complete recovery possible?

Diabetes is a chronic disease and there is no complete recovery yet, but there are effective methods of monitoring, self-monitoring and treatment, and if treating properly, people can avoid the complications as well as deterioration in quality of their life.

The patients should be actively involved and should support the whole treatment process. This can be possible only with full knowledge of their own disease.

WHAT IS PREDIABETES?

Prediabetes is a condition when the blood sugar levels are between the range of healthy normal and diabetes level.

Prediabetes is the disorder of fasting glycemic index and glucose tolerance. It is important to identify the main risk factors, because Type 2 diabetes can very often be asymptomatic.

The main risk factors are:

- Excess weight, obesity (abdominal),
- first-level relatives with diabetes
- cardio-vascular diseases
- arterial hypertension or use of antihypertensive medication
- high levels of triglycerides and low levels of high-density lipoprotein (HDL) in the blood,
- low physical activity
- fatty liver
- gestational diabetes.

Diabetes complications

To avoid diabetes complications, the disease should not be left unattended. In case of uncontrolled diabetes, the probability of damage to blood vessels and nerve fibers is very high, which leads to late complications of diabetes. For self-monitoring, we highlight several targeted checkups. Monitoring the indicators makes it possible to postpone the complications.

Targeted checkups

For the proper management of diabetes, it is necessary to know the following target indicators:

- glycemia, HbA1c, when fasting and two hours after meals
- blood pressure
- indicators of total cholesterol and its types
- waist circumference

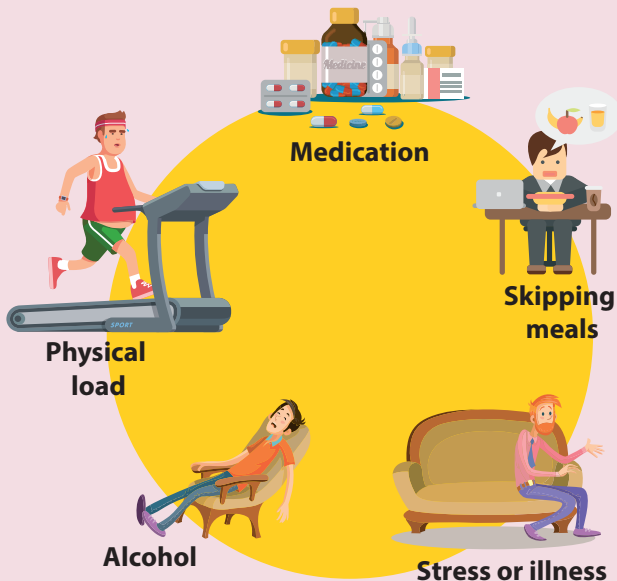


Hypoglycemia

Hypoglycemia, a rapid drop in blood sugar is one of the rapidly developing complications in diabetes. Very often, hypoglycemia can go without complaints. It is quite dangerous, because the patient may miss the time to help himself, as a result of which fainting may occur.

You can avoid this by proper self-monitoring and by measuring the blood sugar level frequently.

What are the possible causes of hypoglycemia?



What are the signs of hypoglycemia?



impaired
coordination,
irritation



feeling
hungry



dizziness



tremble



excessive
sweating



heart
palpitations

What should be done in case of hypoglycemia?

In case of moderate hypoglycemia, when the patient can eat and drink independently, it is necessary to:

- immediately take 150-200 ml of sweet juice, honey, sugar
- avoid physical activity
- measure the blood sugar 10-15 minutes after taking sweets. In case the blood sugar level remains low, repeat the above steps.
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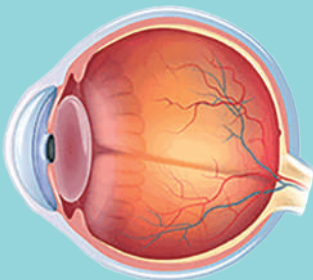
In case of severe hypoglycemia, when the patient cannot help himself, is unable to eat or drink, it is necessary to:

- call for emergency
- do an i/m or m/m injection in case of glucagon availability
- make an intravenous injection if it is possible to inject a glucose

EYE COMPLICATIONS. DIABETIC RETINOPATHY

High blood glucose levels resulting from long-term uncontrolled diabetes damage the microvascular network of the eye, causing diabetic retinopathy. It develops gradually and even in the late stage of the disease it can proceed without significant signs and complaints. If a person doesn't complain of visual impairment, it still doesn't mean he has no eye disease. When a patient complains of visual impairment, it can indicate not only damage to the vessels of the eye, but also frequent fluctuations in the level of glucose in the blood. Remember that every complication is easier to prevent than to cure. That's why it is very important to visit an ophthalmologist at least once a year and have an eye exam, even if there are no complaints.

Diabetic retinopathy

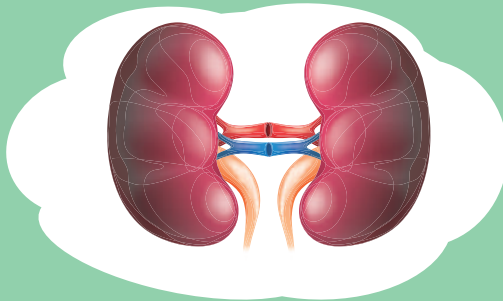


A healthy eye



Diabetic retinopathy:
the affected eye

RENAL COMPLICATIONS. DIABETIC NEPHROPATHY



Diabetic nephropathy develops in case of long-term uncontrolled diabetes, as a result the vessels of the kidneys, which provide its main function - urine filtration, are affected. The filtration is very important as the harmful substances are thus removed from the body through urine, but in case of failure, this function is disrupted, and the toxins remain in the body.

Kidney failure also leads to high blood pressure and related complications. It is very important to know that in the initial stage of the disease, the patient may have no complaints and may miss the time of effective treatment. To prevent this, it is very important to have a general examination of urine at least once a year (as well as the detection of microalbuminuria).

- Monitoring the target indicators is an effective way to prevent and treat the diabetic nephropathy, as well as other complications.



CARDIOVASCULAR COMPLICATIONS

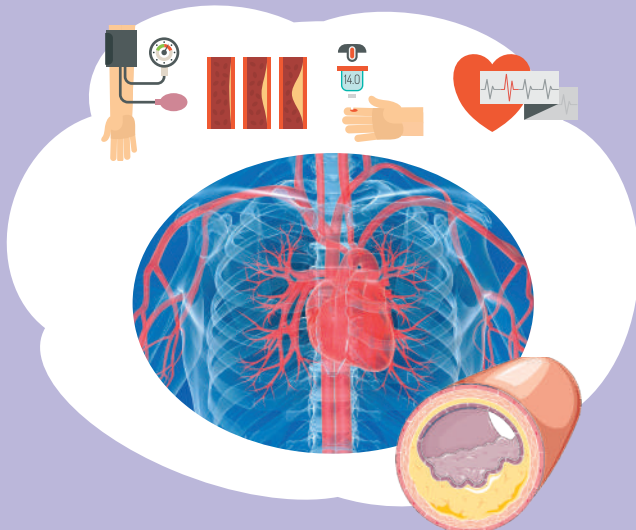
It is known that among patients with Type 2 diabetes, the probability of cardiovascular diseases is 2-3 times more than among general population.

Diabetes is often accompanied by cardiovascular diseases, such as ischemic heart disease, arterial hypertension, etc.

Ischemic heart disease is the result of atherosclerotic lesions of coronary vessels feeding the heart. The uncontrolled diabetes is an important factor of its development.

In case of diabetes, the vascular network of the target organs of the body (heart, brain, kidneys) is damaged, which leads to arterial hypertension, ischemic heart disease and kidney failure.

Almost 40% of patients with high blood pressure also have diabetes, and 60% of patients with diabetes have high blood pressure and coronary heart disease.



Atherosclerosis also causes damage to the blood vessels in the brain, causing memory loss, mental impairment and impaired blood circulation in the lower extremities.

It is known that cardiovascular complications can often have an asymptomatic, “silent” course.

Vascular complications such as myocardial infarction, cerebrovascular stroke and kidney failure lead to high level of mortality in patients with diabetes.

Prevention and treatment of cardiovascular diseases

Diabetes is considered to be a disease of wrong lifestyle, associated with obesity, low physical activity and unhealthy food. As a rule, medications are prescribed, but proper diet and weight loss are equally important.

The basis of prevention and treatment of vascular complications is to achieve the target indicators of exams. If these indicators are not in the norm range, more frequent monitoring and treatment is necessary. It is important to monitor the blood glucose level during the day, blood pressure according to the instructions or at every visit to the doctor, as well as lipid (cholesterol) rates of exchange at least once a year.

In case of diabetes, antidiabetic and blood pressure medication should be taken continuously, even if blood pressure, glucose and other indicators have improved and reached to the norm.

DIABETIC NEUROPATHY

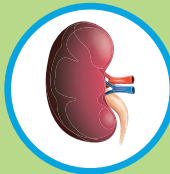
Diabetic neuropathy (when nerve endings are damaged) is another diabetes complication. The main cause is the uncontrolled diabetes.

It is important to know that in the prediabetes stage the nerve limbs, especially the nerve fibers of the lower limbs can be damaged. First of all, it is expressed by a decrease in peripheral thermal sensation.

If the legs are affected, there is a feeling of coldness, numbness, tingling, and the feeling of insects crawling.



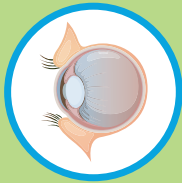
In case of neuropathy, the nerve fibers innervating the internal systems are also affected, which leads to their dysfunction.



Neuropathy leads to heart diseases- heart rhythm disorder, silent myocardial infarction. Patients often complain of palpitations and irregular heartbeats. All this is accompanied by chest pain and breathing difficulties.



Damage to the nerve fibers innervating the gastrointestinal tract can cause nausea, heartburn, feeling too full, constipation, or diarrhea.



Incontinence, chronic pyelonephritis, cystitis and erectile dysfunction can be early manifestations of neuropathy of the genitourinary system.

Diabetes Foot Care Rules

In diabetes, foot lesions often develop unnoticed, but with daily care you can avoid these complications.



Wash feet daily with lukewarm water (30°C–35°C), carefully remove calluses with a pumice stone, then dry thoroughly with a towel..



Shape your nails only with a file using it in a horizontal direction..



For dry skin use a special cream or oil and use baby powder between the toes.



Do not walk barefoot.



The shoes should be comfortable with soft leather and the right size. Before putting the shoes on, check by hand for creases, protruding nails, or any other small objects.



Carefully examine your feet every day. You can check the soles using a mirror. Consult a doctor in case of any change: crack, ulcer or callus.



Do not heat your feet with heating stove or rubber heating pad. As your sensitivity is reduced, you may not notice and get a burn. Wear cotton or wool socks that should not squeeze the calf and should keep your feet warm.



Change the socks daily.



Wash the small wounds, cuts and cracks with soap, treat only with Furacilin or hydrogen peroxide, then cover with a sterile bandage. Do not ever use iodine, potassium permanganate, alcohol or diamond green (zelyonka).



Quit smoking as it is harmful to the vessels.



An example of a self-monitoring diary

Personal information

Patient (Name Surname father's name) _____

Date of birth _____

Address _____

Phone number _____

The year the Diabetes Type 2 was discovered _____

Physician (Name, Surname) _____

Physician's phone number _____

Prescription instructions (by hours) _____

Does the patient attend the Diabetes schools? If yes, the last attended date _____

Complications and concomitant diseases _____

HbA1c targets _____ date _____

Weight _____ date _____

Waist circumference _____ date _____

Body mass index _____ date _____

Date	Medications		
	morning	noon	evening
01. January	+		+
02. -----	+	+	
03. -----		+	+
04. -----	+		
05. -----	+	+	
06. -----			+
07. -----	+		

	Blood sugar level							
Date	breakfast		lunch		dinner		Before sleeping	Notes
	before	2 hours after	before	2 hours after	before	2 hours after		
01.	9,5			-	10,1			blood pressure 150/90
02.	8,9			11,2	9,8	6,5		dry mouth after meals, thirst
03.	9,2			7,3	6,9			blood pressure 140/80
04.	8,1			-	6,4			Weight 88kg
05.	6,2			-	-	7		blood pressure 130/80
06.	5,9			6,1	7,2			
07.	6,7			-	5,9			Working in a garden, weight 87,5kg