Type 2 Diabetes Mellitus, Diagnosis, Adult

Type 2 diabetes (type 2 diabetes mellitus) is a long-term (chronic) disease. In type 2 diabetes, one or both of these problems may be present:

- The pancreas does not make enough of a hormone called insulin.
- Cells in the body do not respond properly to insulin that the body makes (insulin resistance).

Normally, insulin allows blood sugar (glucose) to enter cells in the body. The cells use glucose for energy. Insulin resistance or lack of insulin causes excess glucose to build up in the blood instead of going into cells. As a result, high blood glucose (hyperglycemia) develops.

What increases the risk?

The following factors may make you more likely to develop type 2 diabetes:

- Having a family member with type 2 diabetes.
- Being overweight or obese.
- Having an inactive (sedentary) lifestyle.
- Having been diagnosed with insulin resistance.
- Having a history of prediabetes, gestational diabetes, or polycystic ovarian syndrome (PCOS).
- Being of American-Indian, African-American, Hispanic/Latino, or Asian/Pacific Islander descent.

What are the signs or symptoms?

In the early stage of this condition, you may not have symptoms. Symptoms develop slowly and may include:

- Increased thirst (polydipsia).
- Increased hunger (polyphagia).
- Increased urination (polyuria).
- Increased urination during the night (nocturia).
- Unexplained weight loss.
- Frequent infections that keep coming back (recurring).
- Fatigue.
- Weakness.
- Vision changes, such as blurry vision.
- Cuts or bruises that are slow to heal.
- Tingling or numbness in the hands or feet.
- Dark patches on the skin (acanthosis nigricans).

How is this diagnosed?

This condition is diagnosed based on your symptoms, your medical history, a physical exam, and your blood glucose level. Your blood glucose may be checked with one or more of the following blood tests:

- A fasting blood glucose (FBG) test. You will not be allowed to eat (you will fast) for at least 8 hours before a blood sample is taken.
- A random blood glucose test. This checks blood glucose at any time of day regardless of when you ate.
• An A1c (hemoglobin A1c) blood test. This provides information about blood glucose control over the previous 2–3 months.
• An oral glucose tolerance test (OGTT). This measures your blood glucose at two times:
  ◦ After fasting. This is your baseline blood glucose level.
  ◦ Two hours after drinking a beverage that contains glucose.

You may be diagnosed with type 2 diabetes if:
• Your FBG level is 126 mg/dL (7.0 mmol/L) or higher.
• Your random blood glucose level is 200 mg/dL (11.1 mmol/L) or higher.
• Your A1c level is 6.5% or higher.
• Your OGGT result is higher than 200 mg/dL (11.1 mmol/L).

These blood tests may be repeated to confirm your diagnosis.

**How is this treated?**

Your treatment may be managed by a specialist called an endocrinologist. Type 2 diabetes may be treated by following instructions from your health care provider about:

• Making diet and lifestyle changes. This may include:
  ◦ Following an individualized nutrition plan that is developed by a diet and nutrition specialist (registered dietitian).
  ◦ Exercising regularly.
  ◦ Finding ways to manage stress.
• Checking your blood glucose level as often as directed.
• Taking diabetes medicines or insulin daily. This helps to keep your blood glucose levels in the healthy range.
  ◦ If you use insulin, you may need to adjust the dosage depending on how physically active you are and what foods you eat. Your health care provider will tell you how to adjust your dosage.
• Taking medicines to help prevent complications from diabetes, such as:
  ◦ Aspirin.
  ◦ Medicine to lower cholesterol.
  ◦ Medicine to control blood pressure.

Your health care provider will set individualized treatment goals for you. Your goals will be based on your age, other medical conditions you have, and how you respond to diabetes treatment. Generally, the goal of treatment is to maintain the following blood glucose levels:

• Before meals (preprandial): 80–130 mg/dL (4.4–7.2 mmol/L).
• After meals (postprandial): below 180 mg/dL (10 mmol/L).
• A1c level: less than 7%.

**Follow these instructions at home:**

**Questions to Ask Your Health Care Provider**

Consider asking the following questions:

• Do I need to meet with a diabetes educator?
• Where can I find a support group for people with diabetes?
• What equipment will I need to manage my diabetes at home?
• What diabetes medicines do I need, and when should I take them?
• How often do I need to check my blood glucose?
• What number can I call if I have questions?
• When is my next appointment?
General instructions

- Take over-the-counter and prescription medicines only as told by your health care provider.
- Keep all follow-up visits as told by your health care provider. This is important.
- For more information about diabetes, visit:
  - American Diabetes Association (ADA): www.diabetes.org
  - American Association of Diabetes Educators (AADE):
    www.diabeteseducator.org/patient-resources

Contact a health care provider if:

- Your blood glucose is at or above 240 mg/dL (13.3 mmol/L) for 2 days in a row.
- You have been sick or have had a fever for 2 days or longer and you are not getting better.
- You have any of the following problems for more than 6 hours:
  - You cannot eat or drink.
  - You have nausea and vomiting.
  - You have diarrhea.

Get help right away if:

- Your blood glucose is lower than 54 mg/dL (3.0 mmol/L).
- You become confused or you have trouble thinking clearly.
- You have difficulty breathing.
- You have moderate or large ketone levels in your urine.

This information is not intended to replace advice given to you by your health care provider. Make sure you discuss any questions you have with your health care provider.

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