

Type 2 diabetes

Overview

Diabetes is the name given to a group of conditions that leave the body unable to maintain normal levels of blood glucose or blood sugar. There are two types - type 1 and type 2. While it often runs in families type 2 diabetes usually affects adults who are overweight. Signs that indicate type 2, or adult-onset diabetes, include being very tired, very thirsty, hungry or urinating a lot.

Glucose is the main source of fuel for the body. Blood glucose levels are controlled by a hormone called insulin that is produced by an organ in the upper abdomen called the pancreas.

Insulin allows cells in the body to use glucose to give them energy to work properly. In people with diabetes, either not enough insulin is produced by the pancreas, or the insulin does not act normally in the cells in the body - this is called insulin resistance. When the cells cannot absorb glucose it builds up in the blood resulting in what is termed 'hyperglycaemia'.

Causes

The exact cause of type 2 diabetes is unknown, but it is likely to be due to a combination of genetic and lifestyle factors. The onset is usually gradual.

The risk factors for type 2 diabetes are:

- ▶ Being overweight - fat interferes with your body's ability to respond to insulin causing high blood sugar (hyperglycaemia).
- ▶ Family history - you are more likely to develop type 2 diabetes if other members of your family have already been diagnosed with the disease.
- ▶ Age - your risk increases as you get older.
- ▶ Low levels of physical activity.
- ▶ High cholesterol.
- ▶ High blood pressure.
- ▶ A history of gestational diabetes - diabetes that developed during pregnancy.
- ▶ Polycystic ovarian syndrome - a condition in which cysts in the ovaries and menstrual disturbance are associated with insulin resistance and diabetes.
- ▶ People from some ethnic backgrounds are more likely to develop type 2 diabetes. These include Aboriginal or Torres Strait Islander background, Melanesian, Polynesian, Chinese or people from the Indian sub-continent.

Symptoms

You may not be aware that you have type 2 diabetes. Here is a list of common symptoms:

- ▶ Increased urination - due to the increase in sugar level in the blood and urine.
- ▶ Increased thirst - due to the increase in urination and resulting dehydration.
- ▶ Increased hunger - because the body cannot utilise glucose it triggers you to eat more food. As a result you may experience weight gain.
- ▶ Weight loss - normally your body uses glucose as its source of energy. Weight loss is

more common with type 1 diabetes.

▶ Fatigue - the lack of glucose being absorbed by cells means you have little energy to burn and you feel tired and lethargic.

Up to 50% of people are unaware they have diabetes until secondary complications appear. These include:

- ▶ Blurred vision - high levels of blood glucose pull water from the lens in the eye leaving you unable to focus. High blood glucose can also damage the delicate blood vessels in the retina causing diabetic retinopathy.
- ▶ 'Pins and needles' or numb feet. High blood sugar can damage the blood vessels and nerves serving your feet. This is called diabetic neuropathy.
- ▶ Slow healing sores or recurring itchy skin infections - type 2 diabetes lowers immunity and the body's ability to heal itself.
- ▶ Patches of dark skin - especially in skin folds (armpits, neck, under breasts)

Diagnosis

If your doctor suspects you have type 2 diabetes you will be sent to have a test of your blood glucose. If the result is greater than 7mmol/L before you have eaten or greater than 11mmol/L after food and you have symptoms, diabetes will be diagnosed. If these tests are not conclusive the doctor may send you to have a glucose tolerance test.

For this test you will be asked not to eat any food and drink only water for 8-12 hours (usually overnight) before the blood test. At the pathology centre you will be given a sweet drink and another blood test will be done 2 hours later.

If after fasting your blood sugar level is between 6.1 and 6.9 mmol/L, but your result after a sweet drink (the IGT test) is less than 7.8mmol/L, you have what is called impaired fasting glucose.

This is not a diagnosis of diabetes, but there is a strong risk of progressing to diabetes in the future.

If your blood sugar 2 hours after the drink is more than 7.8 mmol/L but less than 11 mmol/L you have what is called 'impaired glucose tolerance'. Again, this is not a diagnosis of diabetes but is associated with a high risk of developing diabetes in the future.

Treatment options

Lifestyle Changes

The main aim of treatment for any form of diabetes is to lower your blood sugar to normal levels.

This can be achieved by a combination of lifestyle changes and if necessary medication will be prescribed. Even if you are experiencing no symptoms whatsoever, the increased blood sugar can be damaging your eyes, kidneys, blood vessels, nerves and heart leading to life-threatening problems.

Before any other treatment is commenced it will be recommended that you to make

significant changes to your lifestyle.

Type 2 diabetes can often be managed successfully by lifestyle changes alone. These may include:

- ▶ A low-fat diet with plenty of high fibre complex carbohydrates (wholegrain breads, cereals, dried beans, lentils, fruits and vegetables).
 - ▶ Moderate exercise - exercise lowers your blood sugar, improves insulin sensitivity and will help with weight loss. Weight loss is an essential part of diabetes management. Exercise also helps lower high blood pressure.
- Your doctor, a dietician and a diabetes educator will work closely with you to manage your lifestyle changes.

Medication

If your diabetes is not successfully managed by diet and exercise your doctor may prescribe medication. This will help maintain your blood glucose within healthy limits.

You may also be required to monitor your blood glucose levels. Blood glucose test kits are available and your doctor will help choose the right kind of test kit for you. You will also work with your doctor and diabetes educator to decide how often you will have to test your blood glucose levels each day.

In Australia there are different classes of tablets that are used to lower blood glucose. Sometimes different tablets are taken in combination: metformin, sulphonylureas, thiazolidinediones (glitazones), meglitinides, alpha-glucosidase inhibitors, DPP-4 inhibitors, GLP-1 agonists.

With increasing duration of diabetes, the medications above may lose their effect over time and many people with type 2 diabetes need to commence insulin injections. Sometimes a combination of insulin and oral medications is used.

Long term checks

In the long term you will have regular checks on the blood for cholesterol, thyroid function, urine (to check for kidney function) and a test of your average blood sugar called HbA1c.

This test measures the amount of sugar attached to the red blood cells in your circulation and gives a reading of your average blood sugar level for the past two to three months. The target is to get this test to 7% or less.

You will also be sent to an ophthalmologist (an eye specialist) or optician to check the back of your eyes and you will have regular health checks with your doctor and with other members of the diabetes team - diabetes educator, podiatrist (foot specialist) and dietician.

Online support

- ▶ www.diabetesaustralia.com.au
- ▶ www.betterhealth.vic.gov.au