

## **Type I diabetes (juvenile diabetes or insulin-dependent diabetes)**

Type I diabetes occurs when the pancreas does not produce insulin. The pancreas is an organ located behind the stomach that has some cells called beta cells. The beta cells produce a hormone called insulin that regulates the use of glucose, a type of sugar that the body's cells use to get energy. Certain diseases can damage the beta cells so that they stop producing insulin. In most patients with type I diabetes, the cause of the damage to the beta cells is unknown. Without insulin, the body's cells cannot use glucose and the amount of glucose in the blood increases. When glucose accumulates in the blood instead of going to the cells, it can cause health problems. The cells cannot get the energy they need and can be damaged over time. Finally, the great amount of glucose in the blood can damage the eyes, kidneys, nerves, heart or circulation.

### Symptoms

A large concentration of glucose can cause:

- extreme weight loss without setting out to do so
- frequent need to urinate
- increase appetite or thirst
- blurry vision
- feeling of tiredness or weakness
- difficulty concentrating
- nausea and vomiting
- coma (loss of consciousness)

The treatment for reducing blood glucose helps reduce the risk of having these complications. In patients with type I diabetes, this requires insulin injections to replace the insulin that the beta cells would normally produce. To control blood glucose, it is important to eat regularly and follow a healthy diet. A regular exercise program is also beneficial. When you eat, the food is digested and the glucose is absorbed and goes to the bloodstream. The body also can produce glucose from other nutrients that there are in food. Without insulin, the blood glucose concentrations may go up a lot. Insulin injections before meals and a healthy diet help control the glucose level.

A good diet is a very important part of diabetes treatment. The ideal diet contains little fat, only moderate amounts of protein and is rich in complex carbohydrates, such as vegetables and whole grains. It is recommended to eat at approximately the same hour every day and also to try to consume approximately the same amount of calories. It is also important not to skip meals. The dietitian can help you prepare a meal plan that is suited to your tastes and lifestyle.

Exercise is very important for diabetic people since it helps absorb and use glucose and this way reduce blood glucose levels. Ask the doctor to recommend an exercise program if you still do not have one.

### Glucose test

Diabetics must check their glucose at home to monitor their disease. To test the blood glucose concentration, it is necessary to get a drop of blood from a finger.

This drop of blood is placed on a special test strip. A device called glucose monitor measures the concentration of glucose in the drop of blood. Most people with insulin-dependent diabetes can control their glucose better if they do the test at least four times a day. You must keep a record where you write down the results of your glucose tests, the time of day and when you ate and exercised. You will soon know if your treatment plan is having an effect and how exercise and diet affect you.

#### The control of insulin problems

Sometimes the blood glucose concentration can go up or down too much. This can be due to the fact of having received too much insulin or too little. Eating a lot or not eating enough can also contribute to glucose concentrations being abnormal. When you get sick, you may need different amounts of insulin and glucose and your concentrations may be affected.

When you do not have enough insulin and the glucose concentrations go up too much, the body begins to break down fat to get energy. As a result, your body produces some chemical substances called ketones, which can make you feel bad. They can cause nausea and vomiting, breathlessness, increased thirst, dizziness, confusion or even coma. When the ketone concentration is very high it causes what is known as diabetic ketoacidosis, which is a potentially fatal disease.

The blood glucose concentration can drop a lot and cause a condition called hypoglycemia. This can be due to the fact of having received too much insulin, having eaten very little, skipping a meal, eating at an improper hour, doing too much exercise or drinking alcohol on an empty stomach.

If your blood sugar concentration is low, you may have trembling, sweat profusely (diaphoresis), be tired, hungry, confused or nervous. If you think that your glucose is too low or you feel any unusual symptoms, measure your glucose concentration. If your glucose is too low, eat or drink something with 15 grams of sugar immediately, such as 1/2 cup of fruit juice or 1 cup of skim milk.

Blood glucose concentrations that remain high for many years can cause long-term complications in organs. Keeping glucose under control will help you have a healthy future.