The family library

Understanding Diabetes

What is Diabetes?

Diabetes is caused when the body has a problem in making or using insulin. Insulin is a hormone secreted by the pancreas and is needed for the body to properly use carbohydrates. In diabetes, the pancreas does not secrete enough insulin and sugar builds up in the blood. This means the body cells do not have enough sugar for energy and are unable to function properly.

There are different types of diabetes. *Type I* is the most serious. It is also called insulin dependent diabetes. In Type I diabetes, the body destroys the insulin producing cells in the pancreas which leads to the need for daily insulin injections. It usually appears at a young age, people under 40 years of age.

Type II, or noninsulin-dependent diabetes, is less serious. It usually occurs in people age 40 and older. Two things may be happening with Type 2 diabetes. Either the pancreas is able to secrete insulin but the body cannot use it effectively or the body just doesn't make enough insulin. As a result blood sugar does not get into cells to be stored for energy. When sugar cannot enter cells, abnormally high levels of sugar build up in the blood. The onset of type 2 diabetes usually occurs gradually. Most people with the disease are overweight at the time of diagnosis. It can, however, develop in those who are thin, especially the elderly.

People who are overweight are more likely to have Type 2 diabetes, because fat interferes with the body's ability to use insulin. Risk factors also include:

- a family history of diabetes
- belonging to an ethnic group such Blacks, Hispanics, and Native Americans
- being older than 40
- low activity level
- poor diet
- excess body weight (especially around the waist)
- Abnormal cholesterol levels
- high blood pressure
- history of gestational diabetes (Gestational diabetes develops during pregnancy. It usually disappears after the baby is born but the woman is at risk for type 2 diabetes.)

Diabetes (cont.)

Symptoms

Often, people with type 2 diabetes have no symptoms at all. However, symptoms may include:

- Blurred Vision
- Fatigue
- Frequent or slow-healing infections
- Increased appetite
- Increased thirst
- Increased urination
- Unexplained weight loss

Exams and Tests

When diabetes is suspected, the doctor may order several of the following blood tests in order to confirm a diagnosis of diabetes:

1. **Fasting blood glucose level** – In this test the person will not eat or drink anything for at least 8 hours before having blood drawn. The lab will then test the blood to see how much glucose (a type of sugar) is in the blood. If it is higher than normal the person may be at risk of having diabetes.
2. **Hemoglobin A1c test** – In this test blood is drawn and tested to see how much glucose (sugar) sticks to the red blood cells in the blood. This test can be used to diagnose diabetes but it is also used to measure blood sugar control over several months. It can give a good estimate of how well the patient's diabetes has been managed over the last 2 or 3 months. In general, the higher the HbA1c, the higher the risk that problems such as the following may develop:
   - Eye disease
   - Heart disease
   - Kidney disease
   - Nerve damage
   - Stroke

   This is especially true if the HbA1c remains high for a long period of time. The closer the HbA1c is to normal, the less risk there is for these complications.

3. **Oral glucose tolerance test (OGTT)** - The oral glucose tolerance test (OGTT) measures the body's ability to use glucose. The person being tested will drink a sweet liquid containing glucose. Blood samples will be collected at timed intervals of 1, 2, and 3 hours after drinking the glucose. High glucose levels may indicate diabetes. This test is most commonly done to check for diabetes that occurs with pregnancy.

Diabetes (cont.)

Complications of Diabetes

Hypoglycemia - Hypoglycemia (insulin shock) means low blood sugar, or too much insulin is in the blood. This can happen when a person with diabetes skips a meal, eats too little food, increases exercise or is ill and vomiting. The signs of hypoglycemia may include:

- Hunger
- Weakness
- Trembling
- Sweating
- headache
- dizziness
- shallow, rapid breathing
- slow, pounding pulse
- low blood pressure
- confusion
- irritability or nervousness
- cold, clammy skin
- paleness
- convulsions
- unconsciousness

If these symptoms occur, the person may be given orange juice, milk, crackers, or other easily absorbed carbohydrates. To prevent hypoglycemia, the person should eat and exercise at approximately the same time each day.

Hyperglycemia - Hyperglycemia (diabetic coma) means high blood sugar. It is usually a symptom of undiagnosed diabetes. It means the body is not getting enough insulin or is not using the insulin it is secreting. It can occur from eating too much food, too little exercise, and stress. The signs of hyperglycemia include:

- Weakness
- Drowsiness
- Confusion
- Thirst
- Hunger
- Frequent urination
- Flushed face
- Sweet odor to the breath
- Slow, deep, and labored respirations
- Rapid, weak pulse

Diabetes (cont.)

- Low blood pressure
- Hot, dry skin
- Headache
- Nausea and vomiting
- Coma

If these symptoms are observed, the doctor may need to be notified.

Over time, diabetes can be very hard on a person's body and can cause complications if it is not well controlled. If diabetes is not controlled it can lead to a thickening of the blood vessels, which decreases blood flow to vital organs. Circulation problems, blindness, and kidney disease can result. After many years of uncontrolled diabetes, blindness, renal failure, nerve damage, hypertension, and circulatory disorders, serious problems with your eyes, kidneys, nerves, heart, blood vessels, and other areas in your body can occur. Circulatory disorders can lead to stroke, heart attack, and slow wound healing. Foot and leg wounds are very serious. Infection and gangrene can occur and may require amputation in the affected area.

With diabetes, the risk of a heart attack is the same as someone who has already had a heart attack. Both women and men are at risk.

Treatment

The care of the patient with diabetes requires learning several important skills. The immediate goal of treatment is to lower high blood glucose levels and maintain them at normal or as near normal as possible. The long-term goals of treatment are to prevent diabetes-related complications.

The basic diabetes management skills that will help prevent complications include:

- **Blood glucose monitoring** – This will involve using a device called a glucometer to check the blood sugar. The doctor will decide how often this will need to be done. It is one of the most important steps to take in managing diabetes.
- **Diet and weight control** – Person's with diabetes should be on a low-carbohydrate, low-fat diet to help bring the level of sugar in the blood to normal levels. They should eat at about the same time each day and try to be consistent with the types of food they choose. This helps to prevent blood sugar from becoming extremely high or low. A dietitian can help with meal planning that will balance the person's diet. Some people can avoid the use of diabetic medications by controlling diabetes through diet and exercise alone.

Diabetes (cont.)

- **Medications** - If diet and exercise do not help maintain normal or near-normal blood glucose levels, medication may be prescribed. There are many different medications that may be used so it is important to visit with the doctor about which medication has been prescribed, how it works, and any other vital information about the medication.
- **How to recognize and treat low and high blood sugar** – *See Hyper and Hypoglycemia above.*
- **Importance of physical exercise** - Regular aerobic exercise can help lower the blood sugar level and helps burn excess calories and fat so weight can be better managed.
- **Importance of personal care and safety** - Diabetes can cause poor circulation, especially in the feet. It can damage nerves, which means the patient may not feel an injury to the foot until a large sore or infection develops. Diabetes can also damage blood vessels and affect the body's immune system. This decreases the body's ability to fight infection. Small infections can quickly get worse and cause the death of skin and other tissues resulting in the need for amputation of a toe or limb. Giving special attention to the care of the diabetic person's feet and close monitoring of the feet are extremely important. This includes inspecting the feet daily, keeping them clean and moisturized, wearing footwear that fits well and avoids blisters, avoiding anything that could lead to injury such as going barefoot, and allowing only a foot doctor to cut toenails.

  Eye care is especially important for people with diabetes because they are at increased risk of developing eye complications. In fact, diabetes is the leading cause of blindness in adults age 20 to 74. By detecting and treating diabetic eye disease early through annual, dilated eye exams, people with diabetes can preserve their sight.

  Dental care is particularly important for people with diabetes because they face a higher than normal risk of oral health problems due to poorly controlled blood sugars. The less well controlled the blood sugar, the more likely oral health problems will arise. This is because uncontrolled diabetes impairs white blood cells, which are the body's main defense against bacterial infections that can occur in the mouth. Since people with diabetes are more prone to conditions that may harm their oral health, it's essential to follow good dental care practices and to pay special attention to any changes in oral health and to seek a dental consultation if changes occur.
- **Support Groups** – Support groups can offer much needed information and support for both the person with diabetes and their family.

With proper management, diabetes and its complications can be well controlled and the person with diabetes can live a long and healthy life.

For more information on diabetes please click HERE.