Diabetes: Long Term Complications and Related Conditions

The learner will be able to:

- Discuss possible long-term complications of diabetes.
- Discuss monitoring and prevention of long-term complications.
- Describe diabetes self-care behaviors that minimize the risk of complications.
- Discuss how regular follow up visits at the Diabetes Center are important for good diabetes control and prevention of complications.
- State the yearly screening tests: labs, eye and dental exams.

Keeping blood sugars near normal levels can prevent or delay long-term complications of diabetes. Long term complications and other related conditions are explained below. At the time of diagnosis, your diabetes care provider looks for signs of long-term complications and for other medical conditions that go along with diabetes. Screening tests are done every year or every other year after that.

**Eye Disease (Diabetic Retinopathy)**

Diabetes affects the small blood vessels in the back of the eye (retina). The vessels can get weak and may break. This causes vision problems if not treated. Eye disease is not common in children. With early detection and treatment, eye damage can be prevented. Retinopathy is treated with laser therapy which is safe and painless. Good blood sugar control can help prevent eye disease.

Needing glasses to see better is a different problem. It does not mean that the diabetes has affected the eyes.

Your child needs to have a yearly check up with an eye doctor. The doctor will need to do a dilated eye exam (use drops in the eye) to take pictures of the blood vessels in the back of the eye. This does not hurt.

**Foot Problems (Diabetes Neuropathy)**

Foot problems are rare in children with diabetes. Most children have normal circulation and normal feeling in their feet. A cut on the foot should heal quickly.

Adults with diabetes may have diabetic neuropathy or nerve damage from diabetes. When the nerve is damaged, it is less or more sensitive to touch. Adults may get foot problems because they have poor circulation and poor feeling in their feet. They may not feel a cut on their foot. If the cut gets infected, it is hard for it to heal. Good blood sugar control can help prevent foot problems.

- Your child’s feet will be checked by your diabetes provider once a year or if you see problems.
Some tips for good foot care for all children:

- Don’t walk outside on the sidewalk or street without shoes.
- Cut toe nails straight across. File sharp edges with an emery board. Cutting into corners can cause ingrown toenails.
- Wear shoes that fit properly.
- Check with your primary care office or diabetes provider before using over the counter medication for corns, calluses, or warts.
- Check your child’s feet regularly. Talk to your primary care office or diabetes provider if you have concerns.

**Kidney Disease (Diabetes Nephropathy)**

The kidneys clean the blood. Kidney disease happens when the kidneys cannot clean the blood as well as before. Small amounts of protein leak into the urine. This is called microalbuminuria (micro = small, albumin = protein, uria = urine).

A urine test called the Microalbumin to Creatinine Ratio shows us very early signs of kidney disease. When we see signs early on, we can start treatment to prevent more damage and sometimes even reverse damage. Good blood sugar control can help prevent kidney disease.

- Your child will have a urine test once a year. If the first test is not normal, your child will need to have more urine tests to make sure the first one was right. Children with high test results are referred to a nephrologist (kidney specialist) for evaluation and treatment.

**High Blood Pressure (Hypertension)**

High blood pressure is another condition seen in diabetes. About half of the adults with diabetes have high blood pressure. Untreated high blood pressure increases the risk of heart, eye, and kidney disease.

- Your child’s blood pressure will be checked at every clinic visit.

Tips for improving blood pressure:

- If your child is overweight, you can often lower blood pressure by losing weight. Talk with your diabetes team about weight loss.
- Being more physically active is good for a healthy heart. Everyone should exercise or be active for at least 30 minutes every day.
- Smoking and second-hand smoke increases the risk of heart disease. Teaching your children about the dangers of smoking is important. If you smoke, get help to quit or do not smoke around your children.
- High blood pressure can be treated with medicine.
High Cholesterol (Hyperlipidemia)

Cholesterol is a fat-like substance in your bloodstream and in all of your body’s cells. Some cholesterol is needed in your body, but too much in the blood is unhealthy. High cholesterol increases your risk for heart disease. Having diabetes and high cholesterol makes your risk for heart disease greater. Screening and treatment of high cholesterol can lower these risks. Good blood sugar control can prevent high cholesterol.

- Your child will have a blood test every year to look at total cholesterol.

Tips for lowering cholesterol:

- Talk to your dietitian to learn about a healthy heart meal plan.
- Being more physically active is good for a healthy heart. Everyone should exercise or be active for at least 30 minutes every day.
- Avoid smoking! Smoking and second-hand hand smoke increases the risk of heart disease.
- Some children and teens may need medicine to lower their cholesterol.

Gum Disease (Peridontitis)

High blood sugar helps germs grow in your mouth and on your teeth. These germs can cause cavities. They can also cause gums to become red, sore, and swollen. Gums may bleed when brushing teeth. Good blood sugar control can help prevent gum disease. Tips for healthy teeth:

- Floss teeth once a day.
- Brush teeth after meals and snacks. Use a soft toothbrush.
- Schedule dental checkups 2 times a year. Let your dentist know about your child’s diabetes.

Other Related Conditions (Thyroid Disease, Celiac Disease)

The next 2 conditions can happen with diabetes. The diabetes does not cause thyroid disease or celiac disease. You just sometimes see them together. Good blood sugar control will not prevent your child from developing these conditions.

Thyroid Disease

The thyroid gland controls metabolism. It is shaped like a butterfly and is just below the Adam’s apple in the neck. Sometimes the autoimmune process that caused the type 1 diabetes also affects the thyroid gland, making it underactive or overactive.

An underactive thyroid (hypothyroidism) occurs in 3-5 percent of children with diabetes. Symptoms are slow growth, weight gain, and cool, coarse, dry skin, cold intolerance, decreased activity, constipation, tiredness, puffiness, and delayed sexual maturation.
An overactive thyroid (hyperthyroidism) is less common. Symptoms are fast heartbeat, high blood pressure, heat intolerance, diarrhea, weight loss, being very emotional, trouble sleeping, tremors, and swollen ankles.

- Your child will have a blood test every year to look for thyroid disease. Thyroid disease is treated with medicine.

**Celiac Disease**

Celiac disease is an autoimmune disease, like diabetes. People with celiac disease are not able to digest gluten, a protein found in wheat and some other grains. It is more common in people with diabetes. Signs of celiac disease may be stomachaches, diarrhea or constipation, poor growth, anemia, osteoporosis, and problems with teeth. Many of the children with diabetes and celiac disease have no signs of celiac disease.

- Your child will have a blood test every other year for celiac disease. If the blood test is positive, we refer you to a gastroenterologist. This is a doctor who can diagnose whether your child has celiac disease.

Celiac disease is controlled when gluten is removed from the diet. The dietitians in the Diabetes Center would teach you about this.