



Complications of Diabetes: Prevention and Care

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After reading the newsletter, the home health aide should be able to:

1. Describe how diabetes affects blood glucose levels and body function.
2. Identify complications of diabetes and their effects on the body.
3. Discuss measures that help to prevent or delay the onset of diabetic complications.

As Derek, the home health aide, provided care for 63-year old Mrs. R, he wondered how one person could have so many illnesses and conditions. Mrs. R is blind and has lost both lower legs to amputation. She had a stroke, and cannot use her right side. Her kidneys have failed, and she is on dialysis. When Derek asked the nurse, he learned that Mrs. R has only one main illness—diabetes. This disorder is the cause of all the complications that Mrs. R has suffered.

More than 29 million Americans have diabetes, with over 8 million of these unaware that they have the disease. The vast majority of these people, 90-95%, have type 2 diabetes. This disease has reached epidemic levels in the US, due to the high incidence of obesity, lack of exercise, and poor dietary choices



common in this country. Type 2 diabetes most often develops during adulthood, but is now affecting a rising number of children and teens, due to increasing rates of childhood obesity and inactivity. This problem, for both adults and children, is growing. The World Health Organization predicts that the number of people with diabetes will double in the next 20 years.

Diabetes—An Overview

Proper use of sugar, or glucose, in the body is essential for good

health. When food is eaten, glucose and other nutrients are absorbed from the GI tract and enter the blood stream. In order for the body's cells to use this glucose for energy, the glucose must move from the blood stream into the cells. Insulin, a hormone secreted by the pancreas, "unlocks" the cells so that glucose can enter and be used. If insulin is not produced (type 1 diabetes), or if the cells are resistant to it (type 2 diabetes), glucose remains in the blood stream, reaching abnormally high levels. Chronically high blood glucose levels are responsible for the many serious complications of diabetes that can occur with both type 1 and type 2 diabetes.



Complications of Diabetes

Diabetes can affect every part of the body if blood glucose levels are not well-controlled:

Eyes: The delicate blood vessels in the eye are damaged by high blood glucose levels. This condition, diabetic retinopathy, can result in blindness. According to the Centers for Disease Control and Prevention (CDC), diabetic retinopathy is the leading cause of blindness among adults in the US aged 20-74. Diabetes also increases the risk for cataracts and glaucoma.

Nerves: High blood glucose damages nerves in the body, most

commonly in the legs and feet. This is called peripheral neuropathy, and results in burning pain, tingling and loss of feeling in the affected area. This loss of feeling may prevent the person from noticing or seeking treatment for foot and leg injuries or ulcers. This can lead to serious infection and tissue death that may require amputation. Nerves in other parts of the body can also be damaged, causing delayed stomach emptying and loss of bowel and bladder control.

Heart and blood vessels: High glucose levels may cause damage to the lining of blood vessels throughout the body. This causes atherosclerosis, the development of plaque deposits inside the vessels. This plaque can narrow or block the vessels, causing high blood pressure and/or decreasing circulation to an area. This can cause poor circulation to the legs and feet, and along with neuropathy, increases the risk for ulcer development and amputation. A clot may also form in the affected vessels, or a piece of plaque may break off and block blood flow to the heart or brain. This is why people with diabetes have double the risk for heart attack and stroke.

Kidneys: The kidneys are essential for clearing the blood of waste products, as the blood is filtered through tiny blood vessels. When these blood vessels become damaged by high glucose levels, their ability to filter blood decreases over time, and waste products can build up in the circulation. This condition is called diabetic kidney disease or diabetic nephropathy. If kidney function becomes very poor, dialysis or a kidney transplant may be required.

Skin: Diabetes increases the risk for bacterial and fungal skin infections, since high glucose levels promote the growth of these organisms. Also, areas of poor circulation, such as the legs and feet, may itch or be very dry. This can lead to breaks in the skin that may become infected.

Prevention and Care

These complications of diabetes can often be prevented, or at least delayed, by proper care. The most important preventive measure that people with diabetes can take is to keep blood glucose at the levels recommended by their doctor. Daily exercise, losing weight if needed, eating a diet focusing on lean meats, fruits, vegetables and whole grains, and avoidance of smoking are an important part of treatment. Taking medications as



prescribed, managing blood pressure, and having regular check-ups also helps to maintain healthy blood glucose levels, reducing the risk of complications.

When working with clients having diabetes, watch for signs of complications and report them promptly to the nurse:

- burning, tingling or loss of feeling in the hands, legs or feet
- complaints of blurred or decreased vision
- decreased urine output, or difficulty with bowel or bladder control
- areas of itching, pain, redness, warmth or drainage on the skin
- any foot or leg injuries, ulcers or ingrown nails
- nausea, vomiting or diarrhea

If you assist the client with meals, promote good nutrition and healthy blood glucose levels by following the client's prescribed diet. Also, follow the client's orders for exercise and activity, such as a daily walk or range of motion exercises. The client may need to monitor his/her blood glucose and take medications to treat diabetes. Let the nurse know if the client is not checking his/her blood glucose or taking medication as ordered, or runs out of medication, syringes or other supplies.



To help prevent skin complications, the client should be bathed gently with a mild cleanser and patted dry. Make sure that the areas prone to breakdown, such as under the breasts and between the toes, are dried well. Moisturizer should be applied as ordered, especially on dry legs and feet. Lotions and creams should not be applied between the toes, however, as this may promote skin breakdown. The feet should be inspected for redness, ulcers or signs of injury daily. Let the nurse know if the client's toenails need cutting, or if an ingrown nail develops. The diabetic client's toenails should be cut only by a podiatrist or other trained healthcare provider, to help prevent injury and infection. The client should wear clean, cotton socks and well-fitting shoes or slippers to prevent foot injury. Tight socks, hose or knee-highs should be avoided, as these may further decrease circulation to the legs and feet. Crossing the legs at the knees can also decrease circulation.

With proper care, clients with diabetes may be able to prevent or delay many of the serious complications of this disease. Your good care and watchful eye can help your clients to meet this goal.



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NAME: _____ DATE: _____

Directions: Place the letter of the one best answer in the space provided.

- ____ 1. Due to improvements in care, the World Health Organization estimates that the number of people with diabetes will decrease by half over the next 20 years.
 - A. True
 - B. False

- ____ 2. The main job of insulin is to:
 - A. raise blood sugar levels
 - B. help keep water in the body
 - C. help glucose get into the cells
 - D. improve circulation

- ____ 3. Only type I diabetes causes serious complications, as type 2 is milder and does not damage the body's organs.
 - A. True
 - B. False

- ____ 4. Diabetes increases the risk for which of the following cardiovascular complications?
 - A. heart attack
 - B. high blood pressure
 - C. stroke
 - D. all of the above

- ____ 5. Damage to the kidneys by diabetes is known as diabetic:
 - A. retinopathy
 - B. nephropathy
 - C. myopathy
 - D. neuropathy

- ____6. When diabetes causes blindness, this most commonly results from:
- A. clouding of the lens of the eye
 - B. increased pressure within the eye
 - C. damage to the optic nerve, which carries visual images to the brain
 - D. damage to the small blood vessels of the eye
- ____7. Nerve damage caused by diabetes most commonly affects the:
- A. legs and feet
 - B. facial nerves
 - C. stomach
 - D. pressure areas, such as the sacrum
- ____8. The most important factor in preventing complications of diabetes is to:
- A. keep blood glucose at recommended levels
 - B. exercise every day
 - C. avoid any food that contains sugar
 - D. keep blood pressure within normal limits
- ____9. Betty sees Mr. G, a client with diabetes, doing all of the following while caring for him. Which action is most likely to increase his risk of diabetic complications or injury?
- A. walking around the house in his bare feet
 - B. sitting in a chair with his feet flat on the floor
 - C. eating all of the food on his meal plan each day
 - D. taking two walks daily with assistance
- ____10. Care for a client with diabetes should include all of the following EXCEPT:
- A. bathing with a gentle cleanser
 - B. patting dry thoroughly after bathing
 - C. moisturizing feet tops, soles and between toes
 - D. inspecting feet for signs of redness, ulcer or injury

