



Deep Vein Thrombosis: Prevention and Care

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

1. Identify the effects of deep vein thrombosis.
2. List signs, symptoms, and risk factors for DVT.
3. Discuss care of the client with DVT, as well as preventive measures.

As Tanika, the home health aide, pulled down Mrs. B's covers and prepared to help her out of bed, she noticed it— Mrs. B's right leg was swollen. When Tanika asked her about it, Mrs. B said, "It's not my leg that's bothering me, honey, it's my chest. I've been coughing and it hurts—I must have gotten a bad cold."

Tanika kept Mrs. B in the bed and immediately called the nurse. An ambulance was sent to transport Mrs. B to the hospital. After tests were done, it was determined that Mrs. B had deep vein thrombosis, a blood clot in a deep vein in her leg. Furthermore, part of the clot had traveled to her lungs, causing her respiratory symptoms. Debra's good observations and smart decision to keep Mrs. B in bed and call the nurse immediately allowed Mrs. B to get prompt, effective treatment. It may also have helped to save her life.

This newsletter will discuss deep vein thrombosis (DVT), including causes, signs and symptoms, and common medical treatment. The role of the home health aide in preventing DVT and caring for affected clients will also be covered.

DVT—The What, Why and How

DVT is a fairly common, and potentially very serious, circulatory disorder caused by abnormal clot formation. With DVT, clots form in the deep veins of the body, most commonly in the lower leg, thigh or pelvis. Clots may



also form in superficial veins close to the body's surface, but these are not usually as serious as DVT.

The deep veins are large, and send blood through the heart and to the lungs for oxygenation. When clots form on the vein wall, they may break loose and travel to the lungs, causing blockage of vital blood vessels in the lungs. This condition is called pulmonary embolus (PE).



According to data published by the Centers for Disease Control and Prevention (CDC), DVT affects up to 900,000 Americans every year. Up to 100,000 of these people die annually as a result of PE. PE often occurs quickly and without warning. For 25% of people with DVT/PE, the first symptom is sudden death.

There are three conditions that are known to promote abnormal clot formation in blood vessels:

- **Venous stasis (slowed blood flow):** The faster and more regularly blood can flow through a vessel, the less chance there is for clot formation. Normally, the leg muscles promote effective circulation. As the person walks, leg muscles squeeze the blood vessels, helping the venous blood flow upward as it returns to the heart. A major factor that slows this blood flow is immobility, such as from bed rest, wearing a cast, or prolonged car or plane travel. Blood flow is also slowed when pressure is placed on the vessels, such as a tight band of sock around the client's knee, or

sitting with legs crossed at the knees. Venous stasis can also be caused by conditions such as heart failure, obesity, and medications that dilate blood vessels.

- **Increased blood clotting:** Conditions that make the blood clot (coagulate) more readily increase the risk of DVT. Dehydration, smoking, pregnancy, cancer and its treatment, and the use of estrogen can all make the blood more likely to clot, increasing the risk of DVT. There are also inherited genetic disorders that cause increased blood clotting.

- **Injury to the blood vessel:** Whenever a vessel is damaged, the risk of clot formation increases. Injury may be caused by IV catheters and medications, surgery and trauma, even something as minor as bumping a leg on furniture.



Age is also an important risk factor for DVT, as people over the age of 65 are more likely to develop it. The most significant risk factor, however, is a previous history of DVT.

Clinical Signs, Diagnosis and Treatment

Common signs and symptoms of DVT include leg swelling, discomfort and “heaviness.” Warmth, redness and tenderness over the clot area may also be noted. In some cases, DVT occurs without any signs or symptoms. If PE develops, signs may include sudden shortness of breath, dizziness, fainting, chest pain (especially when taking a deep breath), coughing up blood, and in some cases, sudden death.

In addition to these symptoms, the effects of DVT can continue long after the acute condition has healed. Valves in the veins, which prevent the blood from “backing up” in the vessel, can be damaged as a result of DVT. This can cause permanent poor circulation in the leg, resulting in swelling, pain, discoloration and development of skin ulcers. This condition is known as post-thrombotic syndrome, and affects up to 30% of people following DVT.

DVT can be difficult for the physician to diagnose, as many other conditions can cause similar signs. A combination of imaging and blood tests is often used to diagnose DVT. The most common imaging test is ultrasound. If further imaging is required, venography may be used. This is an X-ray, used with the injection of contrast medication to better visualize the veins. A D-dimer blood test may be done, which tests for substances that are released when a clot breaks down. A negative result usually means that no clot is present.

Medical treatment of DVT commonly includes hospitalization and use of anticoagulants, such as heparin and warfarin, to prevent further clots.

Medications that actually dissolve the clot (“clot-busters”) may also be used. In some cases, surgery may be needed to remove the clot. Medications and warm soaks may be used for pain relief.

Preventive medical treatment is very important for those at increased risk for DVT. This may include preventive use of heparin, warfarin or other anticoagulants. Compression stockings or a pneumatic compression device may also be ordered.

Role of the Home Health Aide

Many clients are at increased risk for DVT, based on common risk factors such as age over 65, obesity, immobility, trauma due to falls, hip fracture, or a previous history of DVT. As you work with your clients, watch for any swelling or redness of the legs, or other signs of DVT/PE, and report these to the nurse right away.

Risk for DVT can be reduced by ensuring that the client is well-hydrated, drinking 6-8 glasses of fluid per day, unless orders state otherwise. Follow the client’s activity orders to promote circulation, such as regular ambulation. Encourage clients, especially those who cannot ambulate, to pump their feet up and down frequently. When the client is sitting or lying down, his/her feet should be elevated to promote circulation. Clothing should not be tight or leave impressions on the skin. Use of pillows behind the knees and crossing the legs at the knees should be avoided. If compression stockings are ordered, apply them before the client gets out of bed, to prevent swelling.

When caring for a client who has DVT, make sure you are aware of the activity orders. Bed rest with the leg elevated may be ordered until anticoagulant treatment is started. Warm soaks may be ordered to the affected area. The client may need analgesics for pain relief, so let the nurse know right away if the client is uncomfortable. Never rub or massage the client’s legs, as the clot may break off and travel elsewhere. Watch for and immediately report signs of PE, such as shortness of breath, chest pain, or cough.



Clients taking anticoagulant medications to either prevent or treat DVT are at increased risk for bleeding. Watch for and report bruising or bleeding from the nose or gums. Help these clients to avoid bumps and cuts, and use an electric razor instead of a blade.

DVT is a disorder that can cause discomfort, disability, and even death. Your good observation and care can help to prevent and detect DVT in your clients.



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NAME: _____ DATE: _____ UNIT: _____

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

- ____ 1. The most accurate definition of deep vein thrombosis (DVT) is:
 - A. an abnormality in one of the deep veins or arteries of the body
 - B. a blood vessel that bursts from excessive pressure
 - C. a blood clot in the deep veins of the body
 - D. pain and swelling of the arm or leg

- ____ 2. Which of the following is the most common site for DVT?
 - A. artery in the arm
 - B. vein in the arm
 - C. artery in the leg
 - D. vein in the leg

- ____ 3. The biggest concern with DVT is that sudden death may occur due to:
 - A. heart attack
 - B. stroke
 - C. pulmonary embolus
 - D. congestive heart failure

- ____ 4. Which of the following is most likely to promote development of DVT?
 - A. injury to a blood vessel
 - B. decreased blood clotting
 - C. rapid circulation of blood
 - D. decrease in red blood cells

- ____ 5. The most significant risk factor for DVT is:
 - A. age over 65 years
 - B. smoking
 - C. obesity
 - D. previous history of DVT

- _____ 6. Immobility increases the risk of DVT because:
- A. the heart rate is increased
 - B. muscles are not squeezing the leg veins
 - C. white blood cells and platelets increase
 - D. more pressure is placed on the abdomen
- _____ 7. DVT can cause damage that results in permanent poor circulation of the leg.
- A. True
 - B. False
- _____ 8. Measures that help to prevent DVT include all of the following EXCEPT:
- A. wearing loose-fitting clothing
 - B. maintaining bed rest
 - C. wearing compression stockings
 - D. pumping the feet up and down frequently
- _____ 9. Ensuring adequate fluid intake is one way to help prevent DVT.
- A. True
 - B. False
- _____ 10. Treatment for clients with DVT most commonly includes which of the following?
- A. ice packs to the affected area every 2-4 hours
 - B. massaging the affected leg twice daily
 - C. carefully following the activity orders
 - D. all of the above

