



Edema: Causes and Care

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

1. Identify the causes and risk factors for development of edema.
2. Describe selected types of edema and signs/symptoms.
3. Discuss treatment and care for relief of edema.

As Carla, the home health aide, entered Mr. Kent's bedroom, she immediately noticed that his right leg was very swollen. When Carla last saw him yesterday, Mr. Kent had no swelling. Carla immediately notified the nurse, who contacted the doctor. The cause of the swelling was determined to be cellulitis, a bacterial skin infection. Thanks to Carla's good observation and prompt action, Mr. Kent received effective treatment before any serious complications developed.

Swelling in the body due to the collection of fluid is referred to as edema. It is a common medical problem, and may have many causes. This newsletter will discuss edema, including how it develops, causes, types, signs and medical treatment. The role of the home health aide in caring for clients having edema will also be covered.

Edema—How and Why It Develops

The human body contains a high percentage of fluid, as water makes up half or more of a person's body weight. Most of this fluid, about 2/3, is intracellular, inside the body's cells. The remaining 1/3 is extracellular fluid, outside of the cells. Extracellular fluid surrounds the body's cells and also makes up the blood plasma and other body fluids, such as lymph and cerebrospinal fluid.

Edema is swelling caused by the collection of abnormal amounts of

body fluid in an area. Edema may develop when fluid leaks from the blood vessels, or when the lymphatic system doesn't work properly to circulate lymph, a clear fluid that bathes tissues and organs.

The causes of edema are many. These causes can be harmless, such as premenstrual hormone changes, pressure from the growing uterus during pregnancy, prolonged sitting, or eating salty foods. They can also be harmful or even fatal, such as cancer or deep vein blood clots (deep vein thrombosis). Causes and risk factors for edema include:



Venous insufficiency: When leg veins don't work well to help return blood to the heart, fluid can build up in the legs. This is a common cause of leg edema, especially in older people.

Organ failure: Diseases that reduce the function of the heart, lungs, kidneys or liver can all cause edema. Some of these include heart failure, emphysema, pulmonary hypertension and kidney or liver failure.

Medications: Many drugs can cause edema, including steroids, such as prednisone, some drugs for high blood pressure and diabetes, estrogens, ibuprofen and other anti-inflammatory medications.

Poor lymphatic function: Fluid may accumulate if the lymphatic system does not work properly, due to surgery or conditions, such as cancer, that may cause blockage or removal of lymph nodes.

Other illness or injury: Edema may be caused by a condition that blocks circulation or causes inflammation, such as a tumor, blood clot, infection or allergic reaction. An injury such as a sprain or fracture can also cause edema in the affected area.

Signs and Treatment of Edema

Edema may be very obvious when large amounts of fluid collect in a body area, but may not be as noticeable with smaller amounts. Edema most commonly occurs in areas that are dependent, positioned lower than the heart. The legs and feet are common sites of swelling for clients who can ambulate or sit in a chair, while the sacrum may become swollen in clients who spend more time lying down. The face, arms and hands are other common sites for edema. Signs of edema include:

- enlargement of a body area
- a difference in the size of arms or legs
- firm, tight and shiny skin
- weight gain
- a feeling of heaviness in the affected area
- difficulty bending or moving an arm or leg
- tight jewelry or clothing
- discomfort or itching in the affected area

Another sign of edema is pitting. When the swollen area is pressed by a finger, an indentation may remain for several seconds to minutes. This is pitting edema. Pitting may also be seen where socks or other clothing constricts a swollen area. Not all edema shows pitting, though. Non-pitting edema, which does not indent with pressure, often occurs with lymph or thyroid problems.

Treatment of edema may be required, not only to treat the underlying condition causing it, but to promote the comfort and safety of the client. Edema can cause pain, itching, reduced function of the arm or leg, poor circulation to the area, and increased risk of injury and infection.

In many cases, treatment of edema is based on the underlying condition. For example, a blood clot in the leg may be treated with heparin, heart failure may be treated with cardiac drugs, or an infection treated with antibiotics. In some cases, treatment is also provided specifically for the edema. Diuretic drugs, such as furosemide (Lasix) can help the kidneys to remove excess fluid from the body, decreasing edema. Other measures that may be helpful include a reduced-salt diet, compression sleeves or stockings, elevation of the affected area and regular movement/activity.



Care of the Client

Remember that new onset of edema may signal a serious condition in your client. As you work with your clients, take note of their usual appearance, especially the face, arms, hands, legs and feet. You'll then be able to notice more quickly if edema develops. Let the nurse know promptly if any edema develops, so that the client can be assessed and, if necessary, treatment provided. Also let the nurse know right away if a client with edema has any new or worsening symptoms, such as increased edema or redness of the area, shortness of breath, confusion or weakness.



When caring for your clients, pay special attention to any edematous areas, as these are more likely to suffer injury or infection. Handle the edematous area gently when transferring or bathing the client, to prevent skin tears or other injury. Do not take blood pressure on a swollen arm. Keep the area clean with daily washing, and dry gently and thoroughly. Apply moisturizer, as ordered, to prevent drying and cracking of the skin. If the swelling involves the feet, do not use moisturizer between the toes, as skin breakdown may occur.

Encourage the client to move and ambulate as ordered, since activity promotes circulation and function, and may help to reduce edema. If ordered and appropriate for the client, elevate the affected arm or leg above the level of the heart when the client is resting, to help reduce the swelling.

If compression sleeves or stockings are ordered, apply these in the morning, before the client gets out of bed, when the edema is at its lowest level. The arms or legs should be dry for easiest application. A small amount of powder or corn starch may be applied to the skin to decrease friction. Turn the stocking or sleeve inside out, leaving the end (foot or hand/wrist) right side out. Apply the end to the foot or hand/wrist, then pull the remaining garment up over the extremity, ensuring that the compression is even and there are no wrinkles. Using household rubber gloves may help in gripping the fabric. The garment should be removed at night, and the skin inspected for signs of injury or irritation.

The client with edema is at increased risk for complications as a result of the swelling and any underlying medical conditions. Your good care can help to detect signs of worsening condition early, promote circulation and function, and help to protect the client from injury and infection.



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NAME: _____ DATE: _____ UNIT: _____

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

- ____ 1. Edema is best described as:
 - A. enlargement of a body part
 - B. abnormal fat deposits that reduce function
 - C. swelling due to collection of fluid
 - D. hardening of the skin and underlying tissue

- ____ 2. Water makes up at least half of the weight in the normal adult body.
 - A. True
 - B. False

- ____ 3. The majority of water in the body is:
 - A. outside of the cells, surrounding them
 - B. in the blood vessels
 - C. inside the cells
 - D. in the lymphatic system

- ____ 4. All causes of edema are harmful and indicate serious illness in the body.
 - A. True
 - B. False

- ____ 5. Edema may be caused by which of the following?
 - A. certain medications
 - B. illnesses, such as heart failure
 - C. lymphatic problems
 - D. all of the above

- _____ 6. A person sitting in a chair is most likely to develop dependent edema in the:
- A. arms
 - B. face
 - C. back
 - D. legs
- _____ 7. If the skin indents when pressure is applied, this type of edema is known as:
- A. pitting
 - B. severe
 - C. non-pitting
 - D. physiologic
- _____ 8. Mr. A. has edema in his right arm and hand due to circulation problems. To prevent injury, Mr. A should avoid using his right arm as much as possible.
- A. True
 - B. False
- _____ 9. To help reduce edema in Mrs. G's legs, they should be positioned:
- A. however Mrs. G prefers
 - B. in abduction, with her legs spread out from the hips
 - C. flat on the bed
 - D. above the level of her heart
- _____ 10. Compression stockings are ordered for treatment of Mrs. G's leg edema. These should be applied:
- A. when Mrs. G has been out of bed for 2-3 hours
 - B. whenever the swelling in Mrs. G's legs becomes noticeable
 - C. before Mrs. G gets out of bed in the morning
 - D. in the evening, shortly before bedtime

