# Ewing's Sarcoma

Ewing's sarcoma is a rare type of cancer that grows in the bones. It is usually found in longer bones of the arms or legs. The thigh bone (*femur*) is the bone most often affected, followed by the bones of the pelvis, lower leg, upper arm (*humerus*) and chest.

It is the second most common type of cancer found in children. Ewing's sarcoma typically occurs in people between 10 and 20 years old. However, it can occur at any age.

## CAUSES

No one knows exactly what causes Ewing's sarcoma. Certain changes in genes seem to cause this cancer; but what causes those changes is not known. The cancer occurs in white males more than any other group of people. Other possible causes include:

- Injury or damage to the bone.
- Radiation from an earlier cancer treatment.

## SYMPTOMS

The major signs and symptoms of Ewing's Sarcoma are:

- Fever with no cause.
- Bones that break too easily.
- Weight loss.
- No desire to eat.
- Paralysis, if the tumor is in the spine.
- Loss of control of the bladder and/or bowels, if the tumor is in the spine.
- Painful or hot-to-the-touch lumps or swelling on arms, legs, chest, back or pelvis.
- Lumps or swelling on arms, legs, chest, back or pelvis that are hot-to-the-touch.
- Low energy or feeling tired all the time.
- Tingling or other strange feelings, if the tumor is affecting nerves.

## DIAGNOSIS

Ewing's sarcoma is diagnosed through a variety of tests:

- An X-ray may show where the tumor is located.
- A bone scan may show whether other bones are affected.
- A bone marrow sample helps find signs of cancer that could be affecting blood production.
- MRI (*magnetic resonance imaging*) is a diagnostic test that uses large magnets, radio frequencies, and a computer to make images of organs and structures within the body. This test outlines the extent of the tumor within the bone and joint and the relationship of the tumor to the muscles, nerves and blood vessels.
- A PET (*positron emission tomography*) scan may help to show cancer activity in some other parts of the body. This can be helpful for “staging” the cancer (see below).
- A CT (*computed tomography*) scan is a diagnostic test that uses x-rays and a computer to produce cross-sectional images (often called slices) of the body. A CT scan can show detailed pictures of any part of the body, including the bones, muscles, fat, and organs. CT scans are more detailed than general x-rays. They may help to show whether the cancer has spread to other parts of the body. For detecting spread to some parts of the body, PET scanning may be better than CT scanning.
- A sample of cells (*biopsy*) from affected bone or soft tissue examined in a lab may help to find out exactly what type of cancer is present.

After Ewing's sarcoma is diagnosed, it will also be “*staged*.” This means that test results will be used to tell your caregiver how far the tumor has spread. The stage of a cancer is used to help decide how it should be treated.

## PROGNOSIS

After this problem is diagnosed, each person's prognosis will depend on many factors. These include:

- The size of the tumor.
- Where the tumor is located.
- Whether the cancer has spread to other parts of the body.
- The person's age and health.
- How well the person and the tumor respond to treatment.
- The treatments available at the time. When found and treated early, many people do well for years.

## COMPLICATIONS

Other problems (*complications*) that result from having Ewing's sarcoma include:

- The possibility that the cancer could spread (*metastasize*) to other parts of the body.
- Infections during treatment.
- Problems with moving an arm, leg or parts of the body because of the tumor and/or treatment.
- The need for more surgeries.
- Changes in growth patterns of affected bones.
- Side effects of treatment. Treatment side effects may occur during and after treatment. Side effects vary with different treatments and may include tiredness, nausea or a burning sensation from radiation.

## TREATMENT

Treatment decisions depend on many of the same things that affect Prognosis (see above). Treatment might include:

- Surgery to remove the tumor.
- *Limb salvage* is removing the part of the bone that has tumor. This is done when you and your caregiver decide there is a good chance of saving the affected arm or leg.
- Surgery to rebuild the bone after treatment.
- *Chemotherapy* uses medicines to stop the cancer cells from growing and/or to shrink the tumor.
- *Radiation* is high-energy rays from a specially designed machine to kill the cancer cells.
- *Amputation* **is done rarely.**

## HOME CARE INSTRUCTIONS

To get started with home care:

- Learn how to give any medicines that are needed to control side effects and manage pain.
- Ask your caregiver about rehabilitation.
- Ask your caregiver about local support groups for families coping with Ewing's sarcoma.
- Ask your caregiver for help with any symptoms or side effects that remain.

## SEEK MEDICAL CARE IF:

- Side effects from treatment are causing problems with everyday activities. Most side effects can be reduced with medicines.
- If there is pain and it is not being controlled by the medicines prescribed.
- You develop fever (more than 100.5°F (38.1 °C). Wounds or sores do not heal.
- You feel you are having any problems controlling your bowels or bladder.

## SEEK IMMEDIATE MEDICAL CARE IF:

- You suddenly notice new problems with moving an affected arm or leg
- An unexplained oral temperature above 102°F (38.9 °C) develops.
- You are losing control of your bowels or bladder.
- You develop problems of chest pain, trouble breathing, or feelings of an uncomfortable heart beat.
- You pass out.

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