

Chronic Myelogenous Leukemia for the Pediatric Patient

What is chronic myelogenous leukemia (CML)?

Leukemia is a cancer that involves the blood-forming tissue of the bone marrow, spleen (an organ that filters and stores blood cells and destroys old blood cells) and lymph nodes (part of the immune system that filters out infections and abnormal cells). There are three types of mature (properly developed) blood cells: red blood cells, which carry oxygen and other materials throughout the body; white blood cells, which fight infection and disease; and platelets, which help cause blood clots to form.

In children with chronic myelogenous leukemia (CML), the bone marrow makes too many white blood cells. There may also be an increase in platelets. Over time, immature cells begin to appear. Eventually, many blasts may be produced (blast crisis).

What are the symptoms of chronic myelogenous leukemia?

Common signs and symptoms of CML include:

- Abnormal white blood cell count
- High platelet count
- Tiredness that does not go away
- Weakness or lack of energy
- Headaches
- Irritability
- Fever
- Night sweats
- Bone pain
- Unexplained weight loss
- Pain or fullness below the ribs on the left side (due to an enlarged spleen)

Sometimes children with CML have no symptoms and the cancer is found when a routine blood test is done for other reasons.

Chromosomes contain the genetic (inherited) material that determines how a cell will look and act. Most children with CML have a Philadelphia chromosome, which is formed by an abnormal combination of chromosomes 9 and 22. The Philadelphia chromosome increases the growth and survival of abnormal cells.

How is chronic myelogenous leukemia diagnosed and treated?

Your child's doctor will do a physical exam to check for general signs such as an enlarged spleen. Blood tests will be done to count the number of each of the different kinds of blood cells. If the results of the blood tests are not normal, a bone marrow aspiration with chromosome analysis may be done.

Treatment for CML in children includes:

- Chemotherapy (cancer-killing drugs) given by mouth
- A bone marrow transplant
- The use of other drugs that prevent the overgrowth of blasts, and
- Sometimes a splenectomy (an operation to remove the spleen)