

Neuroblastoma

Neuroblastoma is one of the most common types of childhood cancer. Neuroblastoma is caused by cancer cells forming in nerve tissue in the abdomen, chest, spinal cord, neck, and other areas of the body, or in the adrenal glands. While there are different classification systems, treatment is based on the risk level of the tumor – generally low, intermediate, or high.

Statistics

- More than 650 children in the U.S. are diagnosed with neuroblastoma annually.
- Neuroblastoma accounts for about 8% to 10% of childhood cancer cases.
- Neuroblastoma is most often diagnosed early in life, with almost 90% of all cases diagnosed before age five.
- In children under 18 months of age, the tumor may spontaneously regress.

Risk Factors

Because of the young age of most neuroblastoma cases, there are no specific lifestyle choices that increase a person's risk of developing neuroblastoma. There are a few risk factors that have been identified, including:

- **Age:** Neuroblastoma is most commonly diagnosed in young children and rarely diagnosed after 10 years of age.
- **Gender:** Neuroblastoma is slightly more common in males than females.
- **Heredity:** About 1% to 2% of all neuroblastoma cases are diagnosed in children who have a family history of the disease. These patients usually develop the disease earlier than other children with no family history of neuroblastoma, and the disease may occur in more than one organ.
- **Genetics:** Genetic factors and birth defects may play a role in the development of neuroblastoma.

Signs and Symptoms

In the early stages, a neuroblastoma may grow without symptoms. Neuroblastoma is often discovered when a mass is felt on a child's body, usually the abdomen. Symptoms of neuroblastoma vary depending on size, location, if it has spread, or if it secretes hormones. Symptoms can include those common with childhood illnesses such as:

- Fever
- Rapid heartbeat
- Diarrhea
- Easy bruising or bleeding
- Loss of appetite
- Feeling full
- Pain in the bones
- High blood pressure
- Anemia
- Pronounced lump
- Skin nodules
- Swelling in legs, upper chest, neck or face
- Enlarged abdomen
- Fatigue
- Weight loss
- Refusal to walk
- Problems urinating or having bowel movements
- Headaches
- Dizziness
- Coughing
- Trouble breathing or swallowing
- Problems feeling or moving body parts
- Blue lumps or bumps under the skin
- Drooping eyelid and small pupil in one eye
- Appearance of eyes bulging
- Weakness or paralysis
- Uncontrolled eye movements
- Dark circles or bruising around eyes

Tips for Prevention

There are no known ways to prevent neuroblastoma.

Treatment Options

Treatment can involve various options depending on the patient, including:

- **Surgery:** Surgery may be performed to remove as much of the tumor as possible. Physicians may recommend surgery for a patient as the primary treatment if the tumor has not spread to other parts of the body. Children less than 18 months old may also be treated with surgery alone or occasionally observation only.
- **Chemotherapy:** Some patients with neuroblastoma may be treated with chemotherapy before or after surgery, or it may be the main course of treatment.
- **High Dose Chemotherapy with Stem Cell Transplant:** This procedure is used for high-risk neuroblastoma patients and starts with a high dose of chemotherapy to eradicate the patient's cancer cells and bone marrow. Then, the patient receives a collection of their own stem cells through an infusion to replace the blood-forming cells in the bone marrow. Within a few weeks, patients will start to recover healthy bone marrow and rebuild their immune system. The patient remains in isolation with specialized nursing through this process. Retinoid and other biological therapies often follow a stem cell transplant.
- **Radiation:** External beam radiation therapy uses high energy x-ray beams to destroy cancer cells. Internal targeted therapies, such as MIBG radiotherapy, can be used to treat advanced neuroblastoma.

About Texas Oncology

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Sources: American Cancer Society, Children's Neuroblastoma Cancer Foundation, National Cancer Institute, National Center for Biotechnology Information, and Neuroblastoma Children's Cancer Society



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