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Neuroblastoma

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

Statistics

- Approximately 700-800 children in the U.S. are diagnosed with neuroblastoma annually.
- Neuroblastoma accounts for six percent 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 more likely to occur 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 nine to 13 months 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 on 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 one or more options depending on the patient, but can include:

- Children less than 18 months old may be treated with surgery alone or occasionally observation only.
- **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.
- **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's stem cells are given to them. Within a few weeks, patients will start to recover a 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 (MIBG radiotherapy) can be used to treat advanced neuroblastoma.

About Texas Oncology

With more than 530 physicians and 280 locations, Texas Oncology is an independent private practice that sees more than 71,000 new cancer patients each year. Founded in 1986, Texas Oncology provides comprehensive, multi-disciplinary care, and includes Texas Center for Proton Therapy, Texas Breast Specialists, Texas Colon & Rectal Specialists, Texas Oncology Surgical Specialists, Texas Urology Specialists, Texas Infusion and Imaging Center, and Texas Center for Interventional Surgery. Texas Oncology's robust community-based clinical trials and research program has contributed to the development of more than 100 FDA-approved cancer therapies. Learn more at www.TexasOncology.com.

Sources: American Cancer Society, American Society of Clinical Oncology, National Cancer Institute, and Neuroblastoma Children's Cancer Society

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