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 gland, 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. Treatments may be used in combination.

Statistics

- Approximately 700 children in the U.S. will be diagnosed with neuroblastoma in 2017.
- Neuroblastoma accounts for 6 percent of childhood cancer cases and about 15 percent of childhood cancer deaths.
- Neuroblastoma is most often diagnosed early in the patient's life, with almost 90 percent of all cases diagnosed before age 5.

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 percent 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.

Signs and Symptoms

In the early stages, a neuroblastoma may grow without symptoms. Neuroblastoma is often discovered when a mass or tumor is felt on a child's body, often 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 mild flu symptoms, diarrhea, bruising, loss of appetite, feeling full, and more severe or unusual symptoms such as pain in the bones, high blood pressure, anemia, a pronounced lump, skin nodules, swelling, refusal to walk, problems urinating or having bowel movements, headaches, dizziness, coughing, trouble breathing or swallowing, ability to feel or move extremities.

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:

- **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 tumors have 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. It is often used if the cancer has spread.
- **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 immune system and bone marrow. Then, stem cells are given to the patient intravenously. Within a few weeks, most patients will start to develop new, healthy bone marrow and rebuild the immune system, both of which continue to grow over time. The patient remains in isolation with specialized nursing through the process.
- **Radiation**: External beam radiation therapy uses high energy X-ray beams to destroy cancer cells while leaving healthy, normal cells alone. Internal radiation (MIBG radiotherapy) is used by injecting radioactive material to kill cancer cells.

Sources: American Cancer Society, National Cancer Institute, Neuroblastoma Children's Cancer Society

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Updated 05/27/17