Globalization of embryonal tumors and side effects.

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Abstract

Embryonal tumors of the central nervous system are cancerous (malignant) tumors that start in the fetal (embryonic) cells in the brain. Embryonal tumors can occur at any age, but most often occur in babies and young children. A computerized tomography scan or magnetic resonance imaging (MRI) may be done right away. These tests are often used to diagnose brain tumors. Advanced techniques, such as perfusion MRI and magnetic resonance spectroscopy may be used.

Keywords: Embryonal tumors, Central nervous system, Malignant.

Introduction

Medulloblastomas the most common type of embryonal tumor, these fast-growing cancerous brain tumors start in the lower back part of the brain, called the cerebellum. The cerebellum is involved in muscle coordination, balance and movement. Medulloblastomas tend to spread through Cerebrospinal Fluid (CSF) to other areas around the brain and spinal cord, though they rarely spread to other areas of the body. As is the case for medulloblastomas, supratentorial primitive neuroectodermal tumors require staging by cerebrospinal fluid cytology and spine MRI evaluation for the identification of subarachnoid dissemination at the time of diagnosis. In most series, 20% or less of infant patients have disseminated disease at the time of diagnosis [1].

Embryonal Tumors with Multilayered Rosettes (ETMRs). Rare tumors that are cancerous, ETMRs typically occur in infants and young children. These aggressive tumors most often start in the largest part of the brain, called the cerebrum, which controls thinking and voluntary movement. ETMRs can also occur in other parts of the brain and are often characterized by a certain genetic change the degree of surgical resection in series of patients with supratentorial primitive neuroectodermal tumors has varied, and in most series the majority of patients, whether infants or young children, have had subtotal resections. However, the extent of surgical resection has not been shown to correlate with outcome. The presence of leptomeningeal dissemination at the time of diagnosis does portend a poorer rate of survival [2].

Imaging tests. Imaging tests can help determine the location and size of the brain tumor. These tests are also very important to identify pressure or blockage of the CSF pathways. A computerized tomography scan or Magnetic Resonance Imaging (MRI) may be done right away. These tests are often used to diagnose brain tumors. Advanced techniques, such as perfusion MRI and magnetic resonance spectroscopy may be used [3].

Chemotherapy uses drugs to kill tumor cells. Typically, children with embryonal tumors receive these drugs as an injection into the vein (intravenous chemotherapy). Chemotherapy may be recommended after surgery or radiation therapy, or in certain cases, at the same time as radiation therapy. In some cases, high dose chemotherapy followed by stem cell rescue (a stem cell transplant using the patient's own stem cells) may be used [4].

The principles of management for infantile central nervous system embryonal tumors are unique because therapeutic alternatives to craniospinal irradiation, the mainstay treatment for both local and distant disease control in older children, are currently under investigation in an attempt to lessen treatment-related neurotoxicity. Outcomes remain similarly poor among all the infantile embryonal tumor types and, therefore, identification of specific molecular targets that have prognostic and therapeutic implications is crucial postsurgical therapy has been similar to that for children with poor-risk medulloblastomas. Treatment with chemotherapy alone, predominantly evaluated in children younger than 5 years of age at the time of diagnosis, has resulted in a poor rate of survival. Outcome may be somewhat better after the use of higher-dose chemotherapy supported by autologous bone marrow transplantation or peripheral stem cell rescue [5].

Conclusion

Embryonal brain tumors are a heterogeneous group of neoplasms that primarily occur in infants and young children. They are highly cellular tumors with brisk mitotic activity, and they share a propensity for dissemination throughout the neuroaxis. Emerging molecular data enable improved diagnostic and prognostic discrimination for these tumors. Because of their aggressive potential, they are treated similarly with multimodality therapy including maximal safe resection, chemotherapy, and age- and risk-adapted radiotherapy. Craniospinal irradiation is commonly used in the treatment of

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these patients, especially in those older than 3 years. Because proton therapy allows for increased sparing of the anterior structures in craniospinal irradiation, there is a particular interest in using proton therapy to treat these young patients.

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