Purpose

RATIONALE: Radiation therapy uses high-energy x-rays to kill tumor cells. Drugs used in chemotherapy work in different ways to stop the growth of tumor cells, either by killing the cells or by stopping them from dividing. Giving radiation therapy in different ways and giving it together with more than one drug (combination chemotherapy) may kill more tumor cells. It is not yet known which radiation therapy and combination chemotherapy regimen is more effective in treating medulloblastoma, supratentorial primitive neuroectodermal tumor (PNET), or ependymoma.

PURPOSE: This clinical trial is studying six different radiation therapy and combination chemotherapy regimens to compare how well they work in treating young patients with medulloblastoma, PNET, or ependymoma.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Intervention</th>
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| Brain and Central Nervous System Tumors | Drug: carboplatin  
|                                  | Drug: cisplatin                        
|                                  | Drug: cyclophosphamide             
|                                  | Drug: etoposide phosphate           
|                                  | Drug: high-dose chemotherapy        
|                                  | Drug: lomustine                        
|                                  | Drug: methotrexate                     
|                                  | Drug: thiotepa                          
|                                  | Drug: vincristine sulfate                
|                                  | Radiation: radiation therapy          |

Study Type: Interventional  
Study Design: Masking: Open Label  
Primary Purpose: Treatment

Official Title: Multicenter Therapy Optimizing Study for Treatment of Children and Adolescents With Intracranial Medulloblastoma / PNET and Ependymoma

Resource links provided by NLM:

- Genetics Home Reference related topics: Ewing sarcoma
- MedlinePlus related topics: Cancer
- Drug Information available for: Cyclophosphamide, Thiotepa, Methotrexate, Vincristine sulfate, Lomustine, Methotrexate sodium, Cisplatin, Etoposide, Carboplatin, Etoposide phosphate
- U.S. FDA Resources

Further study details as provided by National Cancer Institute (NCI):

Estimated Enrollment: 567  
Study Start Date: January 2001
Estimated Primary Completion Date: December 2011 (Final data collection date for primary outcome measure)

Detailed Description:

OBJECTIVES:

- Compare prognosis, using adapted risk stratification and quality control of diagnostic assessments and therapy, in pediatric patients with intracranial medulloblastoma, supratentorial primitive neuroectodermal tumor (PNET), or ependymoma treated with intensified chemotherapy and radiotherapy.
- Determine the effect of omission of radiotherapy, in terms of long-term sequelae, in young children with medulloblastoma and by hyperfractionation and reduction of radiotherapy in older children with medulloblastoma.
- Compare hyperfractionated radiotherapy with reduced-dose radiotherapy in older children with stage M0 medulloblastoma.

OUTLINE: This is a multi-protocol study. Patients are enrolled on 1 of 6 treatment protocols according to diagnosis and age at diagnosis.

- Protocol HIT-2000-AB4 (≥ 4 years old at diagnosis with nonmetastatic medulloblastoma)(phase III randomized controlled multicenter study): Patients are randomized to undergo hyperfractionated radiotherapy or conventional reduced-dose radiotherapy, followed by vincristine, lomustine, and cisplatin.
- Protocol MET-HIT-2000-AB4 (≥ 4 years old at diagnosis with metastatic medulloblastoma or supratentorial PNET): Patients receive combination chemotherapy as in HIT-2000-BIS4 for 2 courses. Patients then undergo hyperfractionated radiotherapy and receive combination chemotherapy as in HIT-2000-AB4. Patients with good response to combination chemotherapy (as in HIT-2000-BIS4) also receive high-dose chemotherapy.
- Protocol MET-HIT-2000-BIS4 (< 4 years old at diagnosis with metastatic medulloblastoma or supratentorial PNET): Patients receive 2-4 courses of carboplatin IV and etoposide phosphate IV continuously over 96 hours. Patients with partial or complete response also receive high-dose carboplatin, etoposide phosphate, cyclophosphamide, and thiotepa. Patients with residual tumor undergo conventional fractionated, reduced-dose radiotherapy.
- Protocol E-HIT-2000-AB4 (≥ 4 years old at diagnosis with intracranial ependymoma): Patients undergo local hyperfractionated radiotherapy. If histological grading shows WHO grade III tumor, patients also receive 5 courses of vincristine, cyclophosphamide, carboplatin, and etoposide phosphate.
- Protocol E-HIT-2000-BIS4 (< 4 years old at diagnosis with intracranial ependymoma): Patients receive 5 courses of cyclophosphamide, vincristine, methotrexate IV, carboplatin, and etoposide phosphate and then undergo conventional fractionated local radiotherapy.

PROJECTED ACCRUAL: A total of 567 patients will be accrued for this study.

Eligibility

Ages Eligible for Study: up to 21 Years
Genders Eligible for Study: Both
Accepts Healthy Volunteers: No

Criteria

DISEASE CHARACTERISTICS:

- Histologically confirmed diagnosis of 1 of the following:
  - Medulloblastoma
  - Supratentorial primitive neuroectodermal tumor (PNET)
  - Ependymoma

- Intracranial tumor
  - No brain stem tumors
  - No recurrent or relapsed tumors

PATIENT CHARACTERISTICS:

- Not specified

PRIOR CONCURRENT THERAPY:

- Not specified

Contacts and Locations

Please refer to this study by its ClinicalTrials.gov identifier: NCT00303810

Locations

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More Information

Clinical trial summary from the National Cancer Institute's PDQ® database

Publications:

ClinicalTrials.gov Identifier: NCT00303810

History of Changes
Other Study ID Numbers: CDR0000455572, GPOH-HIT-2000, EU-205105
Study First Received: March 15, 2006
Last Updated: December 9, 2011
Health Authority: Unspecified

Keywords provided by National Cancer Institute (NCI):
childhood infratentorial ependymoma
childhood supratentorial ependymoma
untreated childhood medulloblastoma
newly diagnosed childhood ependymoma
untreated childhood supratentorial primitive neuroectodermal tumor

Additional relevant MeSH terms:
Ependymoma
Medulloblastoma
Nervous System Neoplasms
Central Nervous System Neoplasms
Neuroectodermal Tumors
Neuroectodermal Tumors, Primitive
Glioma
Neoplasms, Neuroepithelial
Neoplasms, Germ Cell and Embryonal
Neoplasms by Histologic Type
Neoplasms
Neoplasms, Glandular and Epithelial
Neoplasms, Nerve Tissue
Neoplasms by Site
Nervous System Diseases

ClinicalTrials.gov processed this record on January 24, 2013