Histological variants of medulloblastoma are the most powerful clinical prognostic indicators.


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Abstract

BACKGROUND: Medulloblastoma histological classification has gained in importance and newer treatment protocols will include histology stratification. We centrally reviewed medulloblastoma cases from past 10 years reassessing their histology to ascertain its prognostic significance.

METHODS: Samples from 125 consecutive patients (99 males; 10 under age 3 years) were reviewed according to the two WHO classifications of 2000/2007.

RESULTS: Eighty-two patients did not have metastases, the primary tumor was completely resected in 101. The median follow-up was 96 months. Treatment was: our institutional protocol, that is, hyperfractionated accelerated radiotherapy (HART), for 39 non-metastatic cases up to 2003; according to the European PNET IV protocol in 31 cases; a HART-based strategy in 39 metastatic cases; tailored to the age below 3 years and based on high-dose chemotherapy in 10; and tailored to the patients conditions in 7. The 5-year PFS/OS rates were 76% and 81%, respectively. Histology was classic in 93 cases, nodular/desmoplastic in 20, anaplastic/large-cell in 9, and with extensive nodularity (MBEN) in 3. Stratification by residual disease after resection, metastases, age, or protocols was not prognostic. Histology suggested 5-year PFS rates of 82% for the desmoplastic and MBEN variants, 78% for classic medulloblastoma, 44% for the anaplastic/large-cell variants (P = 0.01). Multivariable analysis demonstrated statistically significant difference in PFS by histology (P = 0.02), due to the poor prognosis of anaplastic/large-cell medulloblastoma.

CONCLUSIONS: Tailoring treatments to known risk factors cancelled all prognostic differences, except for anaplasia (not considered as such within previous trials) which proved the most powerful prognostic factor, warranting appropriate treatment intensification. Pediatr Blood Cancer © 2012 Wiley Periodicals, Inc.

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