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abstract

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Survival and prognostic factors of patients with medulloblastoma of the WNT molecular group

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Introduction: Medulloblastoma of the WNT molecular group (MB-WNT) accounts for 10% of medulloblastomas and is characterized by a favorable prognosis. Reduction of therapy intensity for prognostically favorable MB-WNT seems justified.

Methodology: In the period from 1993 to 2021,the analysis included 85 patients with WNT MB under the age of 18 years, who after tumor removal received of craniospinal irradiation (CSI) with a boost to the PF and parallel chemotherapy, as well as 6-8 cycles of polychemotherapy according to the HIT MED protocol.

Results: The median age at diagnosis was 10 years (min 3, max 17).All patients had the classic variant of MB. Metastases were detected in 18 patients (21.2%),residual tumor was detected in 32 patients (37.7%).Stage M1 was detected in 6 patients (7.05%),stage M2 in 2 (2.35%),stage M3 in 10 (11.8%).Somatic mutations in the TP53 gene were detected in 10 patients (7.1%).Patients were distributed by risk groups: low - 58.8%,standard - 15.3%, high - 25.9%.At the time of analysis, 74 patients (87.1%) alive,11 patients (12.9%) died, relapse was diagnosed in 6 patients (7.1%), of whom 5 died from disease progression, 1 patient is alive in the second remission. The 10-year PFS was 0.92. The overall 10-year OS was 0.86.The median overall survival was 112 months. PFS was statistically higher in female patients compared to male patients: 0.98 and 0.81,respectively, p=0.02036;at M0 stage compared to M+ stage,0.97 and 0.74 (p=0.00437);with total tumor resection compared with residual tumor,0.96 and 0.85 (p=0.03090);in low-risk compared to standard and high risk groups-0.98,0.92 and 0.78,respectively (p=0.03579);in the absence of somatic mutation in the TP53 gene compared to cases of mutation detection in tumor, respectively 0.98 and 0.50(p=0.00000).

In a multivariate analysis, PFS was influenced by the stage of the disease and the presence of a somatic mutation in the TP53 gene in the tumor.

Conclusion: Prognostic factors for MB WNT were gender, M stage, resection volume, risk group, somatic mutation TP53.