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Prognostic factors affecting infantile medulloblastoma outcomes in the molecular era: a 12-year single-center experience from Egypt

Ahmed El-Hemaly ¹, Moatasem El-Ayadi ¹, Soha Ahmed ², Hala Taha ^{3 4}, Marwa Said ⁴, Amal Refaat ⁵, Hany Ammar ⁶, Eslam Maher ⁷, Eman Badawy ⁸, Mohamed Reda ⁹, Mohamed El-Beltagy ⁹, Mohamed S Zaghloul ¹⁰, Alaa El-Haddad ¹

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Abstract

Aims: To assess the clinical, pathological and molecular characteristics (Sonic hedgehog and group 3/4 molecular subtypes expression) and treatment modalities for infantile medulloblastoma in correlation with outcomes. **Materials & methods:** A retrospective study of 86 medulloblastoma patients (≤ 3 years) was conducted. M0 patients < 2.5 years received four cycles of chemotherapy followed by focal radiotherapy (FRT) and chemotherapy. Between 2007 and 2015, Metastatic patients < 2.5 years received craniospinal irradiation (CSI) after the end of chemotherapy. After 2015, metastatic patients < 2.5 years received CSI postinduction. **Results:** The hazard ratio for death was significantly higher in the FRT (HR = 2.8) group compared with the CSI group (hazard ratio = 1). Metastatic disease significantly affected the overall survival of the Sonic hedgehog group and the overall survival and event-free survival of group 3/4. **Conclusion:** Metastatic disease had a significant impact on outcomes. FRT is not effective in treating infantile medulloblastoma.

Keywords: Egypt; factors; infantile; medulloblastoma; molecular; outcome; prognostic; single center.

Plain language summary

This study aimed to analyze the management of and prognostic factors affecting the outcomes of 86 young children (< 3 years of age at presentation) diagnosed with medulloblastoma, an aggressive brain tumor that is commonly seen in this age group. All children had surgical operations aiming at resecting their tumors, followed by chemotherapy and irradiation. Study results showed that disease disseminated into the nervous system was associated with poorer outcomes compared with localized disease. Administration of local irradiation to the primary tumor site in the brain only, without exposing the spinal cord to radiotherapy, was associated with a higher risk of death.