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Treatment of Medulloblastoma in the Adolescent and Young Adult Population: A Systematic Review

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Abstract

Medulloblastoma is the most frequent high-grade tumor of the central nervous system in children but accounts for less than 1% of these tumors in adults. Adolescent and young adult (AYA) patients are between both age groups, and different approaches are used to treat medulloblastoma in this population. We performed a systematic review of studies published between 2007 and 2023 that reported treatment approaches and survival data of AYA patients with medulloblastoma, defined as 15 to 39 years of age at diagnosis. Due to the heterogeneity of data, a meta-analysis was not possible. Except for the omission of chemotherapy after radiotherapy in a few adult studies, the treatment backbone is very similar between studies starting enrolment during childhood and older adolescence or adulthood. Despite indications for a higher rate of early treatment termination due to toxicity in adults, survival data remain comparable between studies starting enrolment earlier or later in life. However, molecular subtyping was missing in most studies, so the survival data must be interpreted cautiously. Nevertheless, pediatric-inspired strategies in the AYA population are feasible, but individual dose adjustments may be necessary during treatment and should be considered upfront. Collaborative studies investigating the best treatment approach for medulloblastoma in the AYA population are needed in the future.

Keywords: AYA; adolescents; children; medulloblastoma; survival; toxicity; treatment protocol; young adults.

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