Medulloblastoma treatment

Despite major advancements in cancer genomics and molecular diagnostics over the past decades, surgical resection, irradiation, and adjuvant chemotherapy generally remain the standard of care for all medulloblastoma subgroups. This has several significant shortcomings, including short- and longterm side effects. Major efforts have been made to identify subgroup-specific gene mutations and amplifications as potential targets for customized therapeutic methods, with some of them being tested in clinical trials. Medulloblastoma Immunotherapy has emerged as another promising avenue in medulloblastoma treatment, whereby adoptive cellular therapy and checkpoint inhibition are the frontrunners of a vast array of diverse immunotherapeutic strategies in preclinical and clinical testing. Understanding the tumor microenvironment of medulloblastoma and the interactions between different cell types could provide valuable insights into mechanisms of resistance and potentially lead to new targeted therapies. Furthermore, the deepened understanding of the cells of origin giving rise to distinct medulloblastoma subtypes-most likely coinciding with CSCs driving tumor recurrence—potentially allows for the development of therapies to eradicate these cells specifically or even early, presymptomatic detection and interventions. Future medulloblastoma research will profile personalized treatments for each individual patient based on molecular risk stratification of the disease with the hope of improving survival and reducing relapses 1

Risk stratification based on precise molecular subgrouping is needed for the tailored treatment of MB patients ²⁾.

Surgery

see Medulloblastoma Surgery

Chemotherapy and radiation

Chemotherapy and radiation are given as per protocol. The goal of current treatment approaches is to tailor therapy based on clinical risk factors, with intensification of treatment for children with high-risk disease and reduction of radiation therapy for those with standard-risk disease.

Chemotherapeutic trials have been developed to assess the safety and efficacy of various multi-agent therapies to improve the poor results of high-risk patients and to allow reduction in the dose of radiation needed to cure standard-risk patients, which may allow a decrease in late cognitive sequelae. Currently, it is policy to evaluate all children with posterior fossa tumors characteristic of medulloblastoma with preoperative, staging neuroimaging studies of the craniospinal axis.

Chemotherapy for Medulloblastoma

see Chemotherapy for Medulloblastoma.

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Radiotherapy for Medulloblastoma

Craniospinal irradiation for medulloblastoma treatment.

Medulloblastoma Immunotherapy

Medulloblastoma Immunotherapy

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