Are molecular subgroups of medulloblastomas really prognostic?

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PURPOSE OF REVIEW: Medulloblastoma is no more a unique disease. Clinical and biologic classification used so far are challenged by molecular classification(s). Following the consensus article that described four molecular groups of medulloblastoma in 2012, several articles in 2017 provided more relevant classifications that may impact on further clinical trial design.

RECENT FINDINGS: Though wingless (WNT) and sonic hedgehog (SHH) are defined by the activation of their respective pathways, the age and type of activation define various subgroups with specific features and outcome. Groups 3 and 4 remain ill defined. The whole population of medulloblastoma may be divided in 12 subgroups: WNTαβ, SHHαβγδ, group 3αβγ and group 4αβγ. The paediatric population may be divided in seven subgroups: WNT, SHH of infants and children, and low-risk and high-risk groups 3 and 4. SHH of infants may be divided as iSHH-I vs. iSHH-II that have different prognosis. Moreover, specific drivers of groups 3 and 4 were reported.

SUMMARY: These findings have and will have direct implications on the conception of clinical trials. Low-risk groups will benefit from less toxic therapies, and high-risk groups will benefit from targeted therapies.

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