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Treatment and outcomes of IDH1-mutant gliomas in elderly patients

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Abstract

Objective: Isocitrate dehydrogenase (IDH) mutations in both high- and low-grade gliomas are associated with an increase in survival compared with IDH-wild-type (IDHwt) tumors. A rare and understudied population is elderly individuals, \geq 65 years of age, who have IDH1-R132H-mutant (IDHmt) gliomas. The objective of this paper was to characterize the institutions' experience with IDHmt gliomas in a patient population \geq 65 years of age over the last 10 years.

Methods: A retrospective study of individuals \geq 65 years of age with IDHmt gliomas treated between 2010 and 2020 at Memorial Sloan Kettering was performed.

Results: Twenty-five patients \geq 65 years of age underwent resection or biopsy with a diagnosis of IDHmt glioma (52% WHO grade II, 32% WHO grade III, and 16% WHO grade IV). The most common presenting symptoms were seizure (28%) and motor or sensory deficits (24%). On preoperative MRI, 56% of tumors demonstrated contrast enhancement and 44% had no enhancement. Most patients underwent craniotomy for resection (n = 23, 92%), with subtotal resection achieved in the majority (16/23, 69.6%). Postoperative discharge location included home (64%), acute rehabilitation (16%), subacute rehabilitation (8%), and unknown (12%). Most patients received postoperative chemotherapy (72%) and radiation therapy (68%). The 2- and 5-year survival rates for the overall cohort were 83.1% (95% CI 69.3%-99.7%) and 69.7% (95% CI 53.2%-91.3%), respectively, with grosstotal resection or near-total resection, contrast enhancement, and WHO grade significantly associated with survival. From the clinical sequencing data, no significant differences were identified between younger and older IDHmt cohorts.

Conclusions: While IDH mutation in elderly patients may be rare, these patients have favorable survival relative to their IDHwt counterparts. Age at diagnosis should not be used in isolation to suggest a molecular IDHwt status or poor prognosis when guiding patient treatment decisions.

Keywords: IDH mutation; aging; astrocytoma; elderly; glioma; oligodendroglioma; oncology; tumor.

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