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Letter to Editor

Clinicopathologic features and prognosis analysis of infratentorial diffuse gliomas

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Dear editor,

Diffuse gliomas are the most common malignant tumors of the adult central nervous system (CNS), accounting for approximately 80% of primary CNS malignant tumors.[1] The prognosis for patients remains extremely poor despite aggressive treatment, especially for the infratentorial gliomas.[2] The pathological type and graded diagnosis of gliomas are clearly associated with the prognosis of patients, and commonly used molecular markers include IDH1/2, ATRX, MGMT, etc.[3] In this study, we collected clinicopathologic subtypes of adult infratentorial diffuse gliomas as well as prognostic data to analyze the association of pathological subtypes and clinical features with prognosis (PFS, progression-free survival and OS, overall survival).

We retrospectively included 35 patients (23 males and 12 females) diagnosed pathologically with infratentorial diffuse glioma from June 2016 to June 2022 at Tianjin Huanhu Hospital. The hospital's institutional review board approved the study, and patient consent was not required. The median age was 47.7 years, and clinical symptoms were mainly characterized by ataxia symptoms of dizziness and unsteady walking (63.6%), headache (41.8%), nausea and vomiting (36.4%), followed by limb dyskinesia (18.2%) and sensory abnormalities (16.3%). All patients received surgical treatment, including 19 GTR (gross total resection)/STR (subtotal resection), 9 partial resections, and 7 decompressive resections; all patients have received standard postoperative radiotherapy and/or chemotherapy treatment. In the distribution of pathologic subtypes, there were 30 IDHwt cases, 5 IDHmut, 27 ATRX (+), and 14 MGMT (+). All patients had a median PFS of 13.28 months and a median OS of 15.97 months. Cox regression models of PFS and OS was performed as shown in Table 1. Degree of resection, and the presence of ATRX (+) are influential factors in PFS and OS.

Table 1
Cox regression models of PFS and OS in infratentorial diffuse gliomas.

	P Value	Hazard ratio (95% CI)
Progression-free survival (PFS)		
Age	0.086	2.37 (0.89-6.32)
Degree of resection	<0.001*	0.07 (0.02-0.27)
MGMT (+)	0.017*	0.22 (0.06-0.77)
ATRX (+)	0.009*	0.20 (0.06-0.68)
Overall survival (OS)		
Age	0.040*	4.61 (1.08-19.76)
Degree of resection	0.001*	0.05 (0.01-0.31)
MGMT (+)	0.271	0.41 (0.08-2.02)
ATRX (+)	0.012*	0.09 (0.01-0.59)

*$P < 0.05$ was considered statistically significant.

In conclusion, despite significant advances in the molecular mechanisms of brain tumors, the role of ATRX mutations in glioma development and progression is unclear. ATRX deletion may lead to copy number mutations and promotes glioma progression.[4] We found that patients with ATRX (+) had longer PFS and OS, which may have more benefit from treatment, and that the ATRX could be used as an indicator for clinicians to assess the prognosis of patients. In addition, maximizing the resection of gliomas while preserving the quality of postoperative survival, facilitates the prolongation of the patient's survival.

Declaration of competing interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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