ABSTRACT

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Clinical features and prognostic significance of tumor involved with subventricular zone in pediatric glioblastoma: a 10-year experience in a single hospital.

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PURPOSE: Tumors involved with subventricular zone (SVZ) predicted an adverse prognosis had been well proved in adult glioblastoma (GBM). However, we still know less about its impact on children due to the rarity of pediatric glioblastoma (pGBM). We performed this retrospective study to better understand the clinical and prognostic features of pGBM involved with SVZ.

METHODS: Fifty-two patients diagnosed with pGBM at our center between January 2011 and January 2021 were selected for review to demonstrate the characteristics of tumor contacting SVZ. Thirty patients who underwent concurrent chemoradiotherapy and adjuvant chemotherapy postoperatively were selected for survival analysis.

RESULTS: Of all the 52 patients, 21 were found to contact SVZ and 31 were not. The median PFS and OS in SVZ + patients were 5.2 and 8.9 months, respectively, whereas median PFS and OS were 11.9 and 17.9 months, respectively, in SVZ - patients. Multivariate analysis showed that involvement of SVZ was an independent prognostic factor for OS while focality at diagnosis was an independent prognostic factor for PFS. Tumors contacted with SVZ tend to have larger volumes, lower incidence of epilepsy, and lower total resect rate and they were more likely to originate from midline location. Age at diagnosis; gender; adjuvant therapy; focality at diagnosis; focality at relapse; mutational status of H3K27M, MGMT, IDH1, and IDH2; and expression of P53 and ATRX protein failed to characterize SVZ + patients.

CONCLUSION: Involvement of SVZ predicted worse OS in pGBM and it had some distinct clinical features in comparison with those that did not contact with SVZ. Multifocal tumor at diagnosis was related to a shorter PFS. We should make a further step to clarify its molecular features.

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