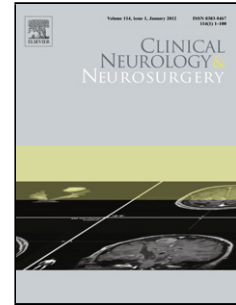


Accepted Manuscript

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PII: S0303-8467(18)30087-8
DOI: <https://doi.org/10.1016/j.clineuro.2018.02.036>
Reference: CLINEU 4947

To appear in: *Clinical Neurology and Neurosurgery*

Received date: 7-12-2017
Revised date: 27-1-2018
Accepted date: 24-2-2018

Please cite this article as: Wen B, Fu F, Hu L, Cai Q, Xie J, Subventricular zone predicts high velocity of tumor expansion and poor clinical outcome in patients with low grade astrocytoma, *Clinical Neurology and Neurosurgery* (2018), <https://doi.org/10.1016/j.clineuro.2018.02.036>

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Subventricular zone predicts high velocity of tumor expansion and poor clinical outcome in patients with low grade astrocytoma

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Highlights

1. SVZ predicted high VDE in patients with low-grade astrocytoma.
2. SVZ predicted worse clinical outcome in patients with low-grade astrocytoma.
3. High VDE was associated with poor prognosis in patients with low-grade astrocytoma.

Abstract

Objective: The aim of this study is to clarify the association between subventricular zone (SVZ) involvement and velocity of diametric expansion (VDE) in patients with low-grade astrocytoma and also assessed the clinical outcome of those patients.

Materials and Methods: A total of 168 adult patients with newly diagnosed supratentorial low-grade astrocytoma were studied retrospectively.

Results: There were 73 patients had SVZ involvement. Patients with SVZ involvement (7.16 ± 6.53 mm/y) had a higher VDE than patients without SVZ involvement (4.38 ± 5.35 mm/y). VDE was modeled as a categorical variable (<4 , ≥ 4 and <8 , ≥ 8 and <12 , ≥ 12 mm/y). Logistic regression showed that SVZ involvement was associated with high VDE after adjusting by confounding variables. On the univariate analysis, the results showed that tumor involved with SVZ, $VDE \geq 4$ mm/y, $VDE \geq 8$ mm/y, and $VDE \geq 12$ mm/y were significant predictors of a shorter OS, progression-free survival (PFS) and malignant progression-free survival (MFS) (all $p < 0.05$). The categorical variables of VDE (<4 mm/y, ≥ 4 mm/y and <8 mm/y, ≥ 8 mm/y and <12 mm/y, ≥ 12 mm/y) were adjusted by confounding variables in multivariate analysis, respectively. The results indicated that $VDE \geq 8$ mm/y, $VDE \geq 12$ mm/y were worse prognostic factors for OS, while $VDE \geq 4$ mm/y, $VDE \geq 8$ mm/y and $VDE \geq 12$ mm/y were related to shorter PFS and MFS. In addition, SVZ involvement was prognostic factors in predicting OS and PFS except MFS.

Conclusion: Our results demonstrated that SVZ involvement predicted high VDE and worse clinical outcome, and high VDE was associated with poor prognosis in patients with low-grade astrocytoma.

Key words: Low-grade astrocytoma; Velocity of diametric expansion; subventricular zone.

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