Expression of CD133 as a putative prognostic biomarker to predict intracranial dissemination of primary spinal cord astrocytoma.

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OBJECT: Spinal cord astrocytoma with intracranial dissemination carries a poor prognosis. The mechanisms leading to dissemination remain to be elucidated. A stem cell marker, CD133, was reported to predict recurrence patterns in intracranial glioblastoma. We evaluated the significance of CD133 as a putative prognostic biomarker to predict intracranial dissemination in spinal cord astrocytoma.

MATERIALS AND METHODS: This study included 14 consecutive patients with primary spinal cord astrocytoma treated from 1998 to 2014. Six of the patients were women and the patients' ages ranged from 12 to 75 years. Seven and 6 patients underwent open biopsy and partial resection of the tumors, respectively. After confirmation of the histological diagnoses, all patients were treated either with postoperative radiotherapy, chemotherapy, or a combination of both. To identify factors predictive of intracranial dissemination, we ranalyzed their clinical data including Ki-67 labeling index (LI), and CD133 expression.

RESULTS: Intracranial dissemination was observed in 6 out of 14 patients. All 6 patients died during the follow-up period. Among the 8 patients without intracranial dissemination, 5 survived (p = 0.02). Median survival for the patients with intracranial dissemination was 22.7 months. CD133 expression was significantly higher in patients with intracranial dissemination (p = 0.04), while other variables did not indicate the dissemination.

CONCLUSIONS: The expression of CD133 can be an efficient biomarker to predict intracranial dissemination in spinal cord astrocytoma. Recognition of high CD133 expression in surgical specimens and early detection of intracranial dissemination is important for the clinical management of spinal cord astrocytoma.

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