Neoplasm

Deficits in Japanese word spelling as an initial language symptom of malignant glioma in the left hemisphere

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Abstract

Background

A good performance status at diagnosis is a prognostic factor in patients with malignant glioma whose median survival is 24 months. As early diagnosis may improve their poor prognosis, we looked for currently unknown initial symptoms among patients in good performance status.

Methods

We chose 17 consecutive patients with malignant glioma in the left frontal and/or temporal lobe whose Karnofsky Performance Status was more than 80. At preoperative evaluation, we administered the Japanese version of the Western Aphasia Battery.

Results
The chief complaint was difficulty in speech (n = 6), headache/nausea (n = 4), seizures (n = 5), and uncinate fits (n = 1); one patient was symptom-free. Of the 17 patients, 14 exhibited no motor deficits. In 15 patients, the aphasia quotient exceeded 80, indicating that the overall language deficits were mild. However, in the reading section, their scores on the “spelled kanji (Japanese ideogram) recognition” test (full score = 10) were selectively low (5.3 ± 1.6 for right-handed individuals with frontal lesions, 6.1 ± 1.0 for right-handed patients with temporal lesions, 7.2 ± 2.0 for left-handed/bimanual individuals with frontal/temporal lesions). Their scores on the “spelling kanji” test were 3.0 ± 1.6, 4.8 ± 1.2, and 9.4 ± 0.6, respectively.

Conclusions

Our findings point to the importance of recognizing spelling deficits as an initial symptom of left hemisphere glioma in efforts to identify patients in good performance status whose prognosis may be improved. It would be important to determine if the spelling of alphabetic words is also impaired early in the clinical course of left hemisphere glioma.

Keywords: Aphasia; Diagnosis; Dyslexia; Glioma; Language; Spelling

Abbreviations: AA, anaplastic astrocytoma; AO, anaplastic oligodendroglioma; AOA, anaplastic oligoastrocytoma; AQ, aphasia quotient; fMRI, functional magnetic resonance imaging; GB, glioblastoma; KPS, Karnofsky Performance Status; MRI, magnetic resonance imaging; PET, position emission tomography; WAB-J, Western Aphasia Battery

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