Working memory and the identification of facial expression in patients with left frontal glioma.

Mu YG, Huang LJ, Li SY, Ke C, Chen Y, Jin Y, Chen ZP.

State Key Laboratory of Oncology in South China, Sun Yat-sen University Cancer Center, Guangzhou, People's Republic of China.

Abstract

Patients with brain tumors may have cognitive dysfunctions including memory deterioration, such as working memory, that affect quality of life. This study was to explore the presence of defects in working memory and the identification of facial expressions in patients with left frontal glioma. This case-control study recruited 11 matched pairs of patients and healthy control subjects (mean age ± standard deviation, 37.00 ± 10.96 years vs 36.73 ± 11.20 years; 7 male and 4 female) from March through December 2011. The psychological tests contained tests that estimate verbal/visual-spatial working memory, executive function, and the identification of facial expressions. According to the paired samples analysis, there were no differences in the anxiety and depression scores or in the intelligence quotients between the 2 groups (P > .05). All indices of the Digit Span Test were significantly worse in patients than in control subjects (P < .05), but the Tapping Test scores did not differ between patient and control groups. Of all 7 Wisconsin Card Sorting Test (WCST) indexes, only the Preservative Response was significantly different between patients and control subjects (P < .05). Patients were significantly less accurate in detecting angry facial expressions than were control subjects (30.3% vs 57.6%; P < .05) but showed no deficits in the identification of other expressions. The backward indexes of the Digit Span Test were associated with emotion scores and tumor size and grade (P < .05). Patients with left frontal glioma had deficits in verbal working memory and the ability to identify anger. These may have resulted from damage to functional frontal cortex regions, in which roles in these 2 capabilities have not been confirmed. However, verbal working memory performance might be affected by emotional and tumor-related factors.