

18F-Fluoro-Ethyl-Tyrosine-Positron Emission Tomography in Gliomas: Comparison with Magnetic Resonance Imaging and Computed Tomography

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Abstract : The precise definition margin of high and low-grade gliomas is crucial for treatment. We aimed to assess the feasibility of assessment of the resection regions with post-operative positron emission tomography (PET) using [18F]O-(2-[18F]-fluoroethyl)-L-tyrosine ([18F]FET). Four patients with the suspicion of high and low-grade were enrolled. Patients underwent post-operative [18F]FET-PET, pre-operative magnetic resonance imaging (MRI) and CT for clinical evaluations. In our study, three patients had negative response to recurrence and progression and one patient indicated positive response after surgery. [18F]FET-PET revealed a lesion of increased radiotracer uptake in the dura in the craniotomy site for patient 1. Corresponding to the patient history, the study was negative for recurrence of brain tumor. For patient 2, there was a lesion in the right parieto-temporal with slightly increased uptake in its posterior part with SUVmax = 3.79, so the study was negative for recurrence evaluation. In patient 3 there was no abnormal uptake with negative result for recurrence of brain tumor. Intense radiotracer uptake in the left parietal lobe where in the MRI there was a lesion with no change in enhancement in the post-contrast image is indicated in patient 4. Assessment of the resection regions in high and low-grade gliomas with [18F]FET-PET seems to be useful.

Keywords : FET-PET, CT, glioma, MRI

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