

11C methionine positron emission tomography for meningioma

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Mitamura et al., evaluated the uptake of 2-deoxy-[18F-Fludeoxyglucose \(FDG\)](#) and L-[methyl-[11C](#)]-methionine ([MET](#)) in patients with newly diagnosed [intracranial meningiomas](#) and correlated the results with [tumor proliferation](#).

Data from 22 patients with newly diagnosed intracranial meningioma (12 grade I and 10 grade II) who underwent both FDG and MET brain [PET/CT](#) studies were retrospectively analyzed. The [PET](#) images were evaluated by a qualitative method and semiquantitative analysis using standardized uptake value (SUV) (SUVmax and SUVpeak) and tumor-to-reference tissue ratio (Tmax/N ratio and Tpeak/N ratio). Proliferative activity as indicated by the [Ki-67](#) index was estimated in tissue specimens.

MET PET/CT showed a higher detection rate of meningioma than did FDG PET/CT (100 vs. 46%, respectively). The Tmax/N ratio and Tpeak/N ratio on MET PET/CT were significantly higher than those on FDG PET/CT ($p < 0.001$ and $p < 0.001$, respectively). There was a significant difference between grades I and II with respect to FDG SUVmax ($p = 0.003$), FDG SUVpeak ($p = 0.003$), FDG Tmax/N ratio ($p = 0.02$), FDG Tpeak/N ratio ($p = 0.006$), MET SUVmax ($p = 0.002$), MET SUVpeak ($p = 0.002$), MET Tmax/N ratio ($p = 0.002$), and MET Tpeak/N ratio ($p = 0.002$). There was a significant correlation between Ki-67 index and FDG PET/CT for SUVmax ($p = 0.02$), SUVpeak ($p = 0.005$), and Tpeak/N ratio ($p = 0.05$) and between Ki-67 index and MET PET/CT for SUVmax ($p = 0.004$), SUVpeak ($p = 0.007$), Tmax/N ratio ($p = 0.002$), and Tpeak/N ratio ($p = 0.004$).

MET PET/CT showed a high [sensitivity](#) compared with [FDG PET/CT](#) for detection of newly diagnosed [WHO grades I and II intracranial meningiomas](#). Both FDG and MET uptake were found to be useful for evaluating tumor proliferation in meningiomas ¹⁾.

¹⁾

Mitamura K, Yamamoto Y, Norikane T, Hatakeyama T, Okada M, Nishiyama Y. Correlation of (18)F-FDG and (11)C-methionine uptake on PET/CT with Ki-67 immunohistochemistry in newly diagnosed intracranial meningiomas. Ann Nucl Med. 2018 Jul 21. doi: 10.1007/s12149-018-1284-6. [Epub ahead

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