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^{11}C-methionine uptake in cerebrovascular disease: A comparison with ^{18}F-FDG PET and ^{99m}Tc-HMPAO SPECT

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Objectives: Carbon-11-L-methyl-methionine (^{11}C-methionine) has been reported to be useful for evaluating brain tumors, but several other brain disorders have also shown signs of high methionine uptake. We retrospectively evaluated the significance of ^{11}C-methionine uptake in cerebrovascular diseases, and also compared our results with those for ^{18}F-FDG PET and ^{99m}Tc-HMPAO SPECT. ***Methods:*** Seven patients, including 3 patients with a cerebral hematoma and 4 patients with a cerebral infarction, were examined. All 7 patients underwent both ^{11}C-methionine PET and ^{99m}Tc-HMPAO SPECT, and 6 of them underwent ^{18}F-FDG PET. ***Results:*** A high ^{11}C-methionine uptake was observed in all 3 patients with cerebral hematoma. Increased ^{99m}Tc-HMPAO uptake was observed in 2 out of 3 patients, and all 3 patients had decreased ^{18}F-FDG uptake. Of 4 patients with a cerebral infarction, high ^{11}C-methionine uptake was observed in 3. Increased ^{99m}Tc-HMPAO uptake was also observed in one patient, whereas 3 patients had decreased ^{18}F-FDG uptake. ***Conclusions:*** We should keep in mind that high ^{11}C-methionine uptake is frequently observed in cerebrovascular diseases. CVD should therefore be included in the differential diagnosis when encounting patients with a high ^{11}C-methionine uptake.

Key words: ^{11}C-methionine, PET, cerebrovascular disease, ^{18}F-FDG, ^{99m}Tc-HMPAO