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Clinical Usefulness of [^{18}F]FC119S PET as an Auxiliary Diagnostic Methods for Dementia

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The newly developed ^{18}F-labeled amyloid tracer, 2-[2-(N-monomethyl)aminopyridine-6-yl]-6-[(S)-3-[^{18}F]fluoro-2-hydroxypropoxy]benzothiazole ([^{18}F]FC119S) was recently introduced. We assessed the usefulness of [^{18}F]FC119S PET as an auxiliary diagnostic methods for dementia. 1) For the comparison of [11C]PiB PET and [^{18}F]FC119S PET, a total of 48 subjects-clinically diagnosed Alzheimer's disease (AD) in 10, mild cognitive impairment (MCI) in 10, and congnitive normal subjects (CN) in 28-underwent both [^{11}C]PiB PET and [^{18}F]FC119S PET. 2) To assess the diagnostic performance of [^{18}F]FC119S, a total of 100 subjects-AD in 50, non-Alzheimer's dementia (NAD) in 15, and CN in 35-underwent brain [^{18}F]FC119S PET. 1) The concordance rate of visual analysis of [^{11}C]PiB PET and [^{18}F]FC119S PET was 98% (44 of 45 cases) and the SUVR of [^{11}C]PiB PET and [^{18}F]FC119S PET significantly correlated (r = 0.844, p < 0.001). 2) Based on visual analysis, 45 of 50 cases with AD (90%), 6 of 15 cases (40%) with NAD (40%), and 1 of 35 CN cases (3%) were read as positive scans, respectively. Therefore, visual assessment of [^{18}F]FC119S PET yielded a sensitivity of 90% and a specificity of 86%. The mean values of SUVR were 1.22±0.16 in AD, 1.05±0.06 in NAD, and 1.02±0.06 in CN subjects, respectively. SUVR yielded a sensitivity of 84% and specificity of 84% at the criterion of SUVR > 1.07. There were no clinically significant adverse effects during trial periods. [^{18}F]FC119S PET yields high sensitivity and specificity for identifying AD and therefore may be an auxiliary diagnostic methods for dementia, especially to exclude AD.

Biography

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Notes:

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