

Age-related changes of the [^{11}C]CFT binding to the striatal dopamine transporters in the Fischer 344 rats: a PET study

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We investigated the age-related changes of the binding of [^{11}C]CFT to striatal dopamine transporters (DATs) *in vivo* in Fischer 344 rats by positron emission tomography (PET). The tissue dissection method represented an age-related decrease in the uptake ratio of the striatum to the cerebellum and in the specific binding-to-nonspecific binding ratio of [^{11}C]CFT. PET demonstrated an age-dependent decrease in the striatal uptake of [^{11}C]CFT, however, the kinetic analysis represented the age-related decrease in both the association rate constant (k_3) and dissociation rate constant (k_4), but not the binding potential (k_3/k_4) that was a parameter including both of density and affinity of the binding sites. The PET finding was not necessarily coincident with the result investigated *in vitro* previously. Therefore, careful interpretation is necessary for PET studies using [^{11}C]CFT and small animals such as rats.

Key words: aging, dopamine transporter, [^{11}C]CFT, positron emission tomography