

18F-SMBT-1: First Study Shows Pharmacokinetics and Metabolism in Healthy Human Subjects.

Wednesday, 22 May 2024 17:00 (5 minutes)

Purpose:

Monoamine oxidase-B (MAO-B) is one of the promising targets for the imaging of astrogliosis in the human brain. 18F-SMBT-1 was developed to image astrocytes in various neurological diseases (NDs). Nevertheless, 18F-SMBT-1 real time pharmacokinetics and metabolism in human subjects has not been studied yet.

Objective:

This study aimed to present the technical approaches for setting up 18F-SMBT-1 PET scans and procedures for pharmacokinetics and metabolism in health human subjects.

Study participants were injected with 5-10 mCi of 18F-SMBT-1 and scan time consisted of a 90-min/ 30-min break/ subsequent 60-min scan. The 90-min scan consists of 28 frames, 60-min scan consists of 12 frames. Arterial blood was collected during the PET scan. Each set of samples obtained will be separated into two tubes, one for whole blood sampling and the other will be centrifuged to separate the plasma from the red blood cells. The plasma and the whole blood will be taken to the gamma counter and HPLC was performed for plasma sample alone to be analyzed for radioligand compounds.

Results:

Blood and plasma data demonstrate that 18F-SMBT-1 showed excellent pharmacokinetics profile such as rapid washout from the plasma and blood samples. Also, 18F-SMBT-1 was completely metabolized in humans without leaving harmful radiolabeled metabolite remnants.

Conclusion:

Based on the results from blood and plasma samples, 18F-SMBT-1 could be suitable for MAO-B imaging in the human brain.

Field

Systems and applications

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