

IMAGE DERIVED CAROTID ARTERIAL INPUT FUNCTION AS AN INVERSE PROBLEM IN KINETIC MODELING OF [18F]2-FLUORO-2 DEOXY-D-GLUCOSE(FDG) IN ALZHEIMER DISEASE

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Summary: A two-tissue reversible compartment model is solved by Laplace transform method for kinetic modeling of [18F]2-fluor-2deoxy-D-glucose(FDG), in order to quantify amyloid in Positron Emission Tomography(PET) image. A reverse engineer technic is applied to determine the input function(Ca(t)), that represents the time-course of tracer concentration arterial blood. Ca(t) is obtained by non-linear regression, and, noninvasively from the time–activity curve in a carotid volume of interest (VOI). After calculating a convolution integral, the analytical solution is completely described.