Imaging of apoptosis in the ischemic human brain with ^{18}F-ML-10 a novel PET tracer for molecular imaging of apoptosis

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Background and presentation outline: ^{18}F-ML-10 is a PET tracer newly developed as a tool for imaging of apoptosis. This tracer accumulates specifically in apoptotic cells/tissues, while being cleared from healthy tissues. This presentation starts with a short introduction to the PET technology, followed by a presentation on the preclinical and clinical validation of ^{18}F-ML-10 as a PET tracer for apoptosis.

Aim: The aim of the study was to map out the dynamic accumulation of ^{18}F-ML-10 in target tissues with active apoptosis, e.g. testes and brain infarcts, and to compare the tracer kinetics in apoptotic tissues with the kinetics in tissues free from apoptosis.

Results: The last part of the presentation will focus on the specific uptake of the tracer in tissues affected by apoptosis, such as physiological apoptosis in testes of healthy volunteers as well as pathological apoptosis in cerebral infarcts of patients with acute ischemic stroke.

Conclusion: Analysis of our dynamic PET-data reveals that ^{18}F-ML-10 accumulates over time specifically in various apoptotic target regions, and thus may be used as a tool to study general apoptosis for clinical PET imaging of cell death.

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