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Titel des Beitrags:
F-18-Immuno-PET: Determination of Anti-CD66 Biodistribution in a Patient with High-Risk Leukemia

Abstract:
The monoclonal antibody anti-CD66 labeled with (99)mTc is widely used as Scintimun (R) granulocyte for bone marrow immunoscintigraphy. Further, recently performed clinical radioimmunotherapy studies with [Y-90]Y-anti-CD66 proved to be suitable for the treatment of hematologic malignancies. Before radioimmunotherapy with [Y-90]Y-anti-CD66, dosimetric estimations are required to minimize radiotoxicity and determine individual applicable activities. Planar imaging, using gamma-emitting radionuclides, is conventionally carried out to estimate the absorbed organ doses. In contrast, immuno-PET (positron emission tomography) enables the quantification of anti-CD66 accumulation and provides better spatial and temporal resolution. Therefore, in this study, a semiautomated radiosynthesis of [F-18]F-anti-CD66 was developed, using the F-18-acylation agent, N-succinimidyl-4-[F-18]fluorobenzoate ([F-18]SFB). As a proof of concept, an intraindividual comparison between PET and conventional scintigraphy, using F-18- and Tc-99m-labeled anti-CD66 in 1 patient with high-risk leukemia, is presented. Both labeled antibodies displayed a similar distribution pattern with high preferential uptake in bone marrow. Urinary excretion of [F-18]F-anti-CD66 was increased and bone marrow uptake reduced, in comparison to [Tc-99m]Tc-anti-CD66. Nevertheless,
PET-based dosimetry with [F-18]F-anti-CD66 could provide additional information to support conventional scintigraphy. Moreover, [F-18]F-anti-CD66 is ideally suited for bone marrow imaging using PET.

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