Dokumenttyp: journal article

Autor(en) des Beitrags:
Buck, AK; Bommer, M; Stilgenbauer, S; Juweid, M; Glatting, G; Schirrmeister, H; Mattfeldt, T; Tepsic, D; Bunjes, D; Mottaghy, FM; Krause, BJ; Neumaier, B; Döhner, H; Möller, P; Reske, SN

Titel des Beitrags: Molecular imaging of proliferation in malignant lymphoma.

Abstract: We have determined the ability of positron emission tomography (PET) with the thymidine analogue 3'-deoxy-3'-[18F]fluorothymidine (FLT) to detect manifestation sites of malignant lymphoma, to assess proliferative activity, and to differentiate aggressive from indolent tumors. In this prospective study, FLT-PET was done additionally to routine staging procedures in 34 patients with malignant lymphoma. Sixty minutes after i.v. injection of approximately 330 MBq FLT, emission and transmission scanning was done. Tracer uptake in lymphoma was evaluated semiquantitatively by calculation of standardized uptake values (SUV) and correlated to tumor grading and proliferation fraction as determined by Ki-67 immunohistochemistry. FLT-PET detected a total of 490 lesions compared with 420 lesions revealed by routine staging. In 11 patients with indolent lymphoma, mean FLT-SUV in biopsied lesions was 2.3 (range, 1.2-4.5). In 21 patients with aggressive lymphoma, a significantly higher FLT uptake was observed (mean FLT-SUV, 5.9; range, 3.2-9.2; P< 0.0001) and a cutoff value of SUV = 3 accurately discriminated between indolent and aggressive lymphoma. Linear regression analysis indicated significant correlation of FLT uptake in biopsied lesions and proliferation fraction (r = 0.84; P< 0.0001). In this
clinical study, FLT-PET was suitable for imaging malignant lymphoma and noninvasive assessment of tumor grading. Due to specific imaging of proliferation, FLT may be a superior PET tracer for detection of malignant lymphoma in organs with high physiologic fluorodeoxyglucose uptake and early detection of progression to a more aggressive histology or potential transformation.