and [18F]FDG PET/CT within median 2 days, without treatment between scans. We performed a visual and quantitative analysis of the total lymphoma volume by identifying target lesions (TL). For the latter investigation, maximum/peak standardized uptake values ($SUV_{max/peak}$), and target-to-background ratio (TBR) were calculated. TBR was defined as SUV_{peak} from TL divided by SUV_{mean} from blood pool serving as reference. ***Results:*** [68Ga]Ga-PentixaFor identified MZL manifestations in 33 (100%) patients (vs. [18F]FDG, 25/33 patients [75.8%]), and substantially more MZL manifestations were evident on CXCR4-directed imaging compared to [18F]FDG (274 vs. 154). For a quantitative head-to-head comparison, we identified 143 identical TL on both scans. For concordant lesions, SUV_{peak} on [68Ga]Ga-PentixaFor was 7.1±4.0, which was significantly elevated when compared to [18F]FDG (5.3±4.3, P<0.0001). Similar results were observed for SUV_{max} ([68Ga]Ga-PentixaFor, 11.2±5.4 vs. [18F]FDG, 7.8±5.7, P<0.0001), indicative that a substantial portion of patients may be eligible for CXCR4-directed therapy. TBR was also approximately 1.7-fold higher on [68Ga]Ga-PentixaFor (median, 3.8) when compared to [18F]FDG (2.1, P<0.0001), suggestive for an improved contrast on chemokine receptor PET. ***Conclusion:*** CXCR4-directed PET/CT identifies more sites of disease in patients with newly diagnosed MZL. On a quantitative assessment, a substantial portion of patients would also be suitable for "cold" or "hot" CXCR4-targeted treatment. Last, TBR-derived image contrast was markedly higher on [68Ga]Ga-PentixaFor PET, thereby suggesting improved diagnostic read-out when compared to [18F]FDG.

EP-0319

C-X-C Motif Chemokine Receptor 4-directed PET/CT provides improved Diagnostic Performance relative to [18F]FDG in Newly Diagnosed Patients with Marginal Zone Lymphoma

A. Kosmala[1], *S. E. Serfling*[1], *S. Schneid*[1], *T. Higuchi*[1,2], *A. Weich*[3], *C. Lapa*[4], *P. E. Hartrampf*[1], *M. Raderer*[5], *H. Einsele*[3], *A. K. Buck*[1], *M. S. Topp*[3], *J. Duell*[3], *R. A. Werner*[1,6];
[1]*Department of Nuclear Medicine, University Hospital Würzburg, Würzburg, GERMANY,* [2]*Faculty of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Okayama, JAPAN,* [3]*Department of Internal Medicine II, University Hospital Würzburg, Würzburg, GERMANY,* [4]*Nuclear Medicine, Faculty of Medicine, University of Augsburg, Augsburg, GERMANY,* [5]*Department of Internal Medicine I, Medical University Vienna, Vienna, AUSTRIA,* [6]*Johns Hopkins School of Medicine, The Russell H Morgan Department of Radiology and Radiological Sciences, Baltimore, MD, UNITED STATES OF AMERICA.*

Aim/Introduction: C-X-C motif chemokine receptor 4 (CXCR4) is overexpressed in marginal zone lymphoma (MZL) and thus, may emerge as a theranostic target. We aimed to evaluate the diagnostic performance of CXCR4-targeting [68Ga]Ga-PentixaFor when compared to [18F]FDG PET/CT in newly diagnosed MZL. ***Materials and Methods:*** 33 MZL patients (subtypes: nodal, n=20; extranodal, n=12; splenic, n=1) received [68Ga]Ga-PentixaFor