

Diagnostic Performance of Whole Body Dual Modality 18F-FDG PET/CT Imaging for N- and M-Staging of Malignant Melanoma: Experience With 250 Consecutive Patients

Reinhardt MJ, Joe AY, Jaeger U, Huber A, Matthies A, Bucerius J, Roedel R, Strunk H, Bieber T, Biersack JH, Tüting T

From the Departments of Nuclear Medicine, Radiology, and Dermatology, University Hospital Bonn, Bonn, Germany

ABSTRACT

PURPOSE

To assess the diagnostic performance of positron emission tomography/computed tomography (PET/CT) using ¹⁸F-fluorodeoxyglucose (FDG) for N- and M-staging of cutaneous melanoma.

PATIENTS AND METHODS

This is a retrospective and blinded study of 250 consecutive patients (105 women, 145 men; age 58 ± 16 years) who underwent FDG-PET/CT for staging of cutaneous melanoma at different time points in the course of disease. Whole-body FDG-PET/CT was performed 101 ± 21 minutes postinjection of 371 ± 41 MBq FDG. Diagnostic accuracy for N- and M-staging was determined for CT alone, PET alone, and PET/CT

RESULTS

PET/CT detected significantly more visceral and nonvisceral metastases than PET alone and CT alone (98.7%, 88.8%, and 69.7%, respectively). PET/CT imaging thus provided significantly more accurate interpretations regarding overall N- and M-staging than PET alone and CT alone. Overall N- and M-stage was correctly determined by PET/CT in 243 of 250 patients (97.2%; 95% CI, 95.2% to 99.4%) compared with 232 patients (92.8%; 95% CI, 89.6% to 96.0%) by PET, and 197 patients (78.8%; 95% CI, 73.7% to 83.9%) by CT. All differences were significant. Accuracy of PET/CT was significantly higher than that of PET and CT for M-staging (0.98 v 0.93 and 0.84) and significantly higher than that of CT for N-Staging (0.98 v 0.86). Change of treatment according to PET/CT findings occurred in 121 patients (48.4%).

CONCLUSION

The diagnostic performance of FDG-PET/CT for N- and M-staging of melanoma patients suggests its use for whole-body tumor staging, especially for detection or exclusion of distant metastases.