PURPOSE: The purpose of this retrospective, blinded study was to evaluate the additional value of [18F]FDG PET/CT in comparison with PET alone and with side-by-side PET and CT in patients with malignant melanoma (MM).

METHODS: A total of 127 consecutive studies of patients with known MM referred for a whole-body PET/CT examination were included in this study. PET alone, side-by-side PET and CT and integrated PET/CT study were independently and separately interpreted without awareness of the clinical information. One score each was applied for certainty of lesion localisation and for certainty of lesion characterisation. Verification of the findings was subsequently performed using all available clinical, pathological (n=30) and follow-up information.

RESULTS: The number of lesions with an uncertain localisation was significantly (p<0.001) reduced by PET/CT and side-by-side PET and CT (p<0.05) in comparison with PET alone. In line with this increase in certainty integrated PET/CT reading also improved certainty in characterisation of lesions, however, this did not reach significance (p=0.057) compared versus PET alone. Respectively, PET, side-by-side PET and CT and PET/CT showed a sensitivity of 86%, 89% and 91%, a specificity of 94%, 94% and 94%, a
positive predictive value of 96%, 96% and 96% and a negative predictive value of 80%, 83% and 87%. CONCLUSION: Integrated PET/CT offers a significant benefit in lesion localisation and an improvement in lesion characterisation compared with PET alone or with side-by-side PET and CT. The benefit is not as great as that reported for other tumour entities, which may be due to the high avidity of MM for [18F]FDG.

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