Questioning the Value of Fluorodeoxyglucose Positron Emission Tomography for Residual Lesions After Chemotherapy for Metastatic Seminoma: Results of an International Global Germ Cell Cancer Group Registry

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PURPOSE
Residual lesions after chemotherapy are frequent in metastatic seminoma. Watchful waiting is recommended for lesions < 3 cm as well as for fluorodeoxyglucose (FDG) positron emission tomography (PET)-negative lesions ≥ 3 cm. Information on the optimal management of PET-positive residual lesions ≥ 3 cm is lacking.

PATIENTS AND METHODS
We retrospectively identified 90 patients with metastatic seminoma with PET-positive residual lesions after chemotherapy. Patients with elevated α-fetoprotein or nonseminomatous histology were excluded. We analyzed the post-PET management and its impact on relapse and survival and calculated the positive predictive value (PPV) for PET.

RESULTS
Median follow-up time was 29 months (interquartile range [IQR], 10 to 62 months). Median diameter of the largest residual mass was 4.9 cm (range, 1.1 to 14 cm), with masses located in the retroperitoneum (77%), pelvis (16%), mediastinum (17%), and/or lung (3%). Median time from the last day of chemotherapy to PET was 6.9 weeks (IQR, 4.4 to 9.9 weeks). Post-PET management included repeated imaging in 51 patients (57%), resection in 26 patients (29%), biopsy in nine patients (10%) and radiotherapy in four patients (4%). Histology of the resected specimen was necrosis in 21 patients (81%) and vital seminoma in five patients (19%). No biopsy revealed vital seminoma. Relapse or progression occurred in 15 patients (17%) after a median of 3.7 months (IQR, 2.5 to 4.9 months) and was found in 11 (22%) of 51 patients on repeated imaging, in two (8%) of 26 patients after resection, and in two (22%) of nine patients after biopsy. All but one patient who experienced relapse were successfully treated with salvage therapy. The PPV for FDG-PET was 23%. 
CONCLUSION
FDG-PET has a low PPV for vital tumor in residual lesions after chemotherapy in patients with metastatic seminoma. This cautions against clinical decisions based on PET positivity alone.

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