FDG PET and FES PET Predict PFS on Endocrine Therapy—Response

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We thank Drs. Groheux and Benard for their interest in and insight into our work, and for sharing their concerns. We agree that quantitative assessment of 18F-fluorodeoxyglucose (FDG) and 18F-fluorodeoxyoestradiol (FES) PET together may help guide breast cancer treatment for patients with estrogen receptor (ER)-expressing tumors. Our study with a progression-free survival (PFS) endpoint and updated static FES PET measures did not precisely replicate earlier studies for which FES standardized uptake value (SUV) predicted response (1, 2). However, the optimal cut-off point for FES avidity was quite similar to that in prior studies and, as emphasized by Drs. Groheux and Bénard, a role for FDG PET in predicting clinical benefit on endocrine monotherapy is expected in the context of prior studies.

We interpret our results as indicating that low pretherapy FDG uptake identifies indolent, less aggressive cancers that have favorable PFS regardless of treatment. In other words, FDG uptake acted as a prognostic marker in the study cohort. For the subgroup of patients with high FDG uptake, with unfavorable PFS without effective therapy, higher FES uptake was associated with better outcome on endocrine therapy. Thus, our results supported the therapy-specific predictive capability of FES uptake.

We note in the work cited by Drs. Groheux and Bénard (3), 2 of 84 patients with lesion FDG SUVmax <1.8 or 2.0 were excluded from the primary analysis of response to breast cancer neoadjuvant therapy. In our cohort, 24 of 84 patients had an average FDG SULmax3 (geometric mean of lean body mass-adjusted SUVmax for up to 3 lesions with highest FDG uptake) ≤2.2, which corresponded to an FDG SUVmax (same geometric mean but using SUVmax normalized to body weight) of about 3.0. Our modest FDG SUV cutoff is also much lower than the SUVmax cut-off point of 10.0 used in the neoadjuvant study and likely reflects a difference in the type of patients and tumors referred for metastatic endocrine therapy as opposed to primary cytotoxic chemotherapy.

We agree completely with Drs. Groheux and Benard that the combination of FDG and FES PET is of considerable interest in guiding treatment selection for ER-expressing breast cancer. This premise is supported by our study, in which the combination of measures predicted the outcome after endocrine therapy better than either measure alone. Biomarker selection and application should consider the context of the patient population and available treatments. The breast cancer community has been a pace-setter, using ER status and Oncotype Dx recurrence score as biomarkers to help decide whether or not patients are likely to benefit from the use of adjuvant chemotherapy. With careful development, including a multicenter prospective observational study (EAI142, NCT02398773), the combination of FDG and FES PET may be of considerable benefit for directing the use of endocrine therapy, as well as modern combinations of endocrine therapy with molecularly targeted agents, such as cell cycle and mTOR inhibitors (4, 5). Patients with metastatic ER-expressing breast cancer may live many years with high quality of life and functional status, so it is important to optimize the selection and sequence of anticancer therapy.

Disclosure of Potential Conflicts of Interest
No potential conflicts of interest were disclosed.

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References
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