SNMMI Comment on the 2016 Society of Surgical Oncology "Choosing Wisely" Recommendation on the Use of PET/CT in Colorectal Cancer

Katherine Zukotynski[1], Hossein Jadvar[2], Thomas Hope[3], Rathan M. Subramaniam[4], Katherine Van Loon[5], Madhulika Varma[6], and Ryan D. Niederkohr[7] for the PET Center of Excellence

[1]Departments of Radiology and Medicine, McMaster University, Hamilton, Ontario, Canada; [2]Department of Radiology, University of Southern California, Los Angeles, California; [3]Department of Radiology, UCSF, San Francisco, California; [4]Departments of Radiology and Clinical Sciences, University of Texas Southwestern Medical Center, Dallas, Texas; [5]Department of Medicine, UCSF, San Francisco, California; [6]Department of Surgery, UCSF, San Francisco, California; and [7]Department of Nuclear Medicine, Kaiser Permanente, Santa Clara, California

There has been recent debate about where PET/CT with ^{18}F-FDG fits into the evaluation of patients with colorectal cancer. The PET Center of Excellence of the Society of Nuclear Medicine and Molecular Imaging (SNMMI) would like to comment on the "Choosing Wisely" list recently published by the Society of Surgical Oncology, item 4 of which reads as follows: "Don't perform routine PET-CT in the initial staging of localized colon or rectal cancer or as part of routine surveillance for patients who have been curatively treated for colon or rectal cancer. A CT of the chest, abdomen and pelvis with IV and PO contrast provides excellent staging and standard PET imaging does not significantly improve diagnostic accuracy or outcomes as part of the initial workup or surveillance testing. Use of PET does not eliminate the need for recommended staging CT with IV and PO contrast but does increase costs." We are concerned about this statement because it is broad and does not allow for consideration of the utility of PET/CT on a case-by-case basis. Further, in an era in which insurance companies derive unwavering policies from consensus statements such as this one, the effect of such a broad-sweeping statement may be that providers are denied the opportunity to exercise clinical judgment on the most appropriate imaging modality—"choosing right." Indeed, there are several instances in which PET/CT is clinically valuable both for initial staging and for subsequent treatment planning in patients with colorectal cancer.

The current colon cancer guidelines of the National Comprehensive Cancer Network (*1*) state that PET/CT should be considered at the time of initial staging in two specific instances. The first is when there is a need to characterize equivocal or indeterminate findings on staging contrast-enhanced (CE) CT or when a patient has contraindications to intravenous contrast for CT (e.g., a contrast allergy or impaired renal function), and the second is when there is a need to evaluate patients with potentially curable stage M1 disease (with intent to exclude other sites of occult disease that might potentially render the disease unresectable). The guidelines also highlight the usefulness of PET/CT for restaging in the setting of a serially elevated carcinoembryonic antigen level, negative results on conventional imaging, and potentially resectable metachronous metastases documented by CT, MRI, or biopsy (*2*).

PET/CT performed at the time of initial staging changes the treatment strategy in a substantial number of patients with colorectal or anal cancer. A prospective study by Ozis et al. on 97 patients with rectal cancer who underwent CE CT and PET/CT at initial staging found that PET/CT detected more sites of disease than CE CT alone (particularly distant metastases) and had an impact on treatment strategy in 14% of the patients (*3*). Petersen et al., in a retrospective review of 67 patients with colorectal cancer who underwent CE CT and PET/CT at initial staging, concluded that compared with CE CT alone, PET/CT changed the management plan in 30% of the patients (*4*). Jones et al., in a systematic review of 12 studies comparing PET or PET/CT with conventional imaging during the initial staging of anal carcinoma, reported that the PET findings altered the stage in 41% of the patients (*5*). Further, Shi et al. and Byun et al. reported on retrospective series that found PET/CT could be prognostic of patient survival (*6,7*).

PET/CT can reliably assess therapeutic response, with particularly compelling data in patients undergoing treatment for locally advanced rectal cancer (*7*). Among recently published papers, Calvo et al. prospectively evaluated PET/CT in 38 patients with rectal carcinoma before and after adjuvant therapy and found that a metabolic response was associated with significantly higher survival (*9*). Leccisotti et al. prospectively studied PET/CT in 126 patients with rectal cancer before and after neoadjuvant chemoradiation, and their findings suggested that early assessment of response using PET/CT could predict an incomplete pathologic response, thus opening the door to earlier therapy modification if needed (*10*). Schneider et al. retrospectively studied 199 patients with rectal cancer at the time of restaging after neoadjuvant chemoradiation and found that the PET results brought about a change in clinical management in up to 32% of the patients (*11*).

PET/CT often detects recurrent colorectal cancer when conventional anatomic imaging (e.g., CT or MRI) does not. In particular, in a retrospective study by Choi et al. on 245 colorectal cancer patients who underwent CE CT and PET/CT as part of routine follow-up after resection with curative intent, PET/CT was found to detect more sites of recurrent disease than CE CT (*12*). Further,

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For correspondence or reprints contact: Hossein Jadvar, Keck School of Medicine of USC, University of Southern California, 2250 Alcazar St., CSC 102, Los Angeles, CA 90033.
E-mail: jadvar@med.usc.edu
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Gade et al., Mittal et al., and Metser et al. found that in patients with previously resected colorectal cancer and clinically suspected recurrence, lesion detection was significantly higher with PET/CT (on the order of 15%–30%) than with CE CT (*13–15*).

As the current guidelines of the National Comprehensive Cancer Network—as well as a growing body of literature—suggest, PET/CT plays an important role in determining both the initial treatment strategy and the subsequent treatment strategy for certain patients with colorectal cancer. Studies using PET/CT to assess therapeutic response, particularly in rectal cancer, have had promising findings. Ultimately, we need to partner with our clinical (medical and surgical) colleagues to adopt a personalized approach for our patients and ensure appropriate, effective use of PET/CT in their care. In a manner of speaking, "routine" is, at least to some extent, becoming a word of the past and probably should not be used in our recommendations. We should be "choosing right" for each patient to provide optimal clinical care.

DISCLOSURE

No potential conflict of interest relevant to this article was reported.

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