prospective study with a large group of patients is required to compare supine planar, prone planar and SPECT techniques in the detection of both primary disease in the breast and secondary involvement in the axilla. Without such a study, all approaches implying that the prone technique is superior to the supine planar and SPECT are speculative. I think the best approach should be the combination of these three techniques in accordance with the patient's clinical condition, availability of the prone positioning device and the need for axillary imaging. It seems that none of the techniques would be applicable for every patient in all situations. Thus, none of these techniques should be excluded, and more data are needed, particularly for the supine and SPECT techniques.

In their Materials and Methods section, Taillefer et al. mentioned three patients with a mammary prosthesis, but they gave no data about ^{99m}Tc-MIBI uptake (i.e. result of the test) in the Results section, except in the legend of Figure 5, in which they only included the picture of one patient with a prosthesis. They ignored and did not discuss the results of other two patients. What kind of prostheses were they? Did the presence of a prosthesis interfere with tumoral uptake and interpretation of the uptake? Was the prone technique sufficient to image the patient with a prosthesis? Would it be better to use SPECT imaging on such patients to disclose uptake in a tumor hidden behind the prosthesis?

It was not surprising that, of the two patients with false-positive results, sarcoidosic lymphadenitis was discovered in one and a nonspecific chronic inflammatory reaction was diagnosed in the other, because it was previously shown that ^{99m}Tc-MIBI is also taken up by several benign conditions, including sarcoidosis (*5,8,9*). For these reasons, we should make use of the high sensitivity and negative predictive value rather than the specificity of ^{99m}Tc-MIBI imaging in oncology studies, including breast imaging.

I agree with Taillefer et al. that ^{99m}Tc-MIBI can be used as a marker of tumor viability (page 1762, paragraph 5) (*1*). We previously used ^{99m}Tc-MIBI to assess tumor viability in patients with lung cancer (*4*). Our results in humans clearly showed that ^{99m}Tc-MIBI is taken up by viable tumors only.

I object to their comment at the end of their article on a complementary role for ^{99m}Tc-MIBI breast scintigraphy (*1*). If both mammography and breast scintigraphy give the same information about the breast (i.e. presence or abscence of a breast tumor, location of tumor in the breast, number of tumors, etc.), why is breast scintigraphy a complementary tool to mammography, which reportedly has a lower sensitivity and specificity in establishing necessary diagnostic data (i.e., breast abnormalities)? In addition, breast scintigraphy has more advantages:

1. It can detect axillary lymph node metastasis.
2. It can be helpful in imaging breast with prosthesis.
3. It is far superior to mammography in evaluating dense breast.

I think it is the time to re-evaluate the exact role of breast scintigraphy (complementary versus primary). Specifically, in which clinical conditions is it complementary and when does it have a primary diagnostic role?

About the name of this test: is it scintimammography? Breast scintigraphy? Breast scan? Breast imaging? Once upon a time, words with a prefix scinti- were very popular. Is there anybody around who recently witnessed the use of the word scinti-tomography, a once extremely fashionable word (early 1980s) for SPECT or the word scintiscan?

REFERENCES

1. Taillefer R, Robidoux A, Lambert R, Turpin S, Laperriere J. Technetium-99m-sestamibi prone scintimammography to detect primary breast cancer and axillary lymph node involvenment. *J Nucl Med* 1995;36:1758–1765.
2. Aktolun C, Bayhan H, Kir M. Clinical experience with ^{99m}Tc-MIBI imaging in patients with malignant tumors: preliminary results and comparison with ^{201}Tl. *Clin Nucl Med* 1992;17:171–176.
3. Bayhan H, Aktolun C, Kir Km, et al. Technetium-99m-MIBI imaging in patients with intrathoracic malignant tumors [Abstract]. *Eur J Nucl Med* 1991;18:675.
4. Aktolun C, Bayhan H, Pabuccu Y, Bilgic H, Acar H, Koylu R. Assessment of tumor necrosis and detection of mediastinal lymph node metastasis in bronchial carcinoma with ^{99m}Tc sestamibi imaging: comparison with CT scan. *Eur J Nucl Med* 1994;21: 973–979.
5. Aktolun C, Bayhan H. Technetium-99m-MIBI uptake in pulmonary sarcoidosis: preliminary results and comparison with ^{67}Ga. *Clin Nucl Med* 1994;19:1063–1065.
6. Aktolun C, Bayhan H, kir MK. Demonstration of metastatic brain tumor with ^{99m}Tc-MIBI SPECT [Abstract]. *Nucl Med Commun* 1992;13:249.
7. Kao CH, Wang SJ, Liu TJ. The use of technetium-99m-methoxyisobutylisonitrile breast scintigraphy to evaluate palpable breast masses. *Eur J Nucl Med* 1994;21:432–436.
8. Aktolun C, Bayhan H, Celasun B, Kir MK. Unexpected uptake of technetium-99m-hexakis-2-methoxy isobutyl isonitrile in giant-lymph node hyperplasia of the mediastinum (Castleman's disease). *Eur J Nucl Med* 1991;18:856–859.
9. Aktolun C, Demirel D, kir M, Bayhan H, Maden HA. Technetium-99m-MIBI and thallium-201 uptake in pulmonary actinomycosis. *J Nucl Med* 1991;32:1429–1431.

Cumali Aktolun
Kocaeli University School of Medicine
İzmit, Turkey

REPLY: We thank Aktolun et al. for their interest in our article on ^{99m}Tc-sestamibi scintimammography. Although their letter to the editor is entitled "What Is the Best Technique for Patient Positioning during Breast Scintigraphy?", other different issues were raised and many of them would require an in-depth reply, but we will focus our comments on the most important ones.

We certainly do not agree with the term "excessive high dose" used by Dr. Aktolun for describing a dose of 25–30 mCi ^{99m}Tc-sestamibi. Adequate counting statistics is one of the most basic and most important parameters for obtaining a satisfactory or optimal image in nuclear medicine. This can be achieved by injecting a sufficient amount of activity or increasing the imaging time (or both). This is especially obvious when the target (breast cancer in this case) shows a relatively low absolute uptake (less than 1% of injected dose) or the target-to-background ratio is low. In our study, we used a dose of 25–30 mCi and a data acquisition time of 10 min because the quality of the 5-min images was suboptimal. Furthermore, we would like to point out to Aktolun et al. that the standard dose used in SPECT myocardial perfusion imaging is 20–30 mCi and that the total dose of ^{99m}Tc-sestamibi may even exceed 40 mCi when a same-day injection protocol is used. Dr. Aktolun's comment that a dose of 25–30 mCi is excessive also seems quite contradictory to his suggestion of using SPECT in difficult cases (breast prosthesis for example). In our practice, SPECT imaging for breast cancer detection, even with 30 mCi is not always optimal. A 10-mCi dose could be certainly inadequate and may negatively affect the diagnostic accuracy of the scan. Stating that "a dose of 10 mCi is perfectly enough for the detection of all tumors and that a dose of 20 mCi is unnecessarily high" seems quite "excessive" to us and unless Dr. Aktolun or other groups present data in a comparative study showing that a dose of 10 mCi is sufficient, we will continue to recommend to use a higher dose to obtain optimal imaging parameters.

We did explain in our article why we (and other recent investigators on radionuclide imaging of the breast) chose to use prone imaging. We refer the readers to our original article. It is important to realize that ^{99m}Tc-sestamibi is significantly concentrated in the heart and liver (and sometimes in the bowel or in the stomach). If upright lateral images are obtained, especially in patients with pendulous breasts, many tumors will be masked by the uptake in these underlying organs. One of the major advantages of prone imaging is that the breast is vertically pending and there is no "contamination" from thoracic or abdominal uptake. This is particularly useful in the detection of small lesions situated close to the chest wall. Such lesions could be missed on supine imaging if they are superimposed on the heart or liver. Nevertheless, supine imaging, as stated in our article, is also very useful and this is why we have used it in our study and still continue to use it, especially for localizing inner lesions and for evaluating axillae (although lateral prone imaging is often more optimal to detect axillary lymph node involvement). Both supine anterior and lateral prone images thus give complementary information, thereby providing a better diagnostic evaluation of the patient.

As for the role of breast scintigraphy, it may be a little too early to define its exact clinical role at the present time. As long as there still remains a debate on basic parameters, such as injected dose of ^{99m}Tc-sestamibi,

positionning of the breast, imaging modality, acquisition time and even the name given to this new imaging procedure, it looks like standardization and promotion of scintimammography will be a difficult task!!! However, the first step of the investigation is being completed. Several studies from different centers and two multicenter trials have shown a high sensitivity and specificity for the test, but the majority of articles dealing with scintimammography so far have the same referral bias (positive mammography and/or positive physical examination with histopathologic correlation), since the diagnostic accuracy of the procedure has to be determined. We know more now about the advantages and limitations of scintimammography. However, it is still too early to suggest a primary role for this procedure; certainly not for routine detection of nonpalpable breast cancer, for which mammography remains the initial imaging diagnostic step. However, scintimammography offers significant advantages over mammography in patients with dense breasts or in patients with severe dysplasia for whom the specificity of scintimammography is clearly superior. This is why we consider scintimammography to be complementary to mammography. We do agree with Dr. Aktolun that it is time to evaluate more extensively the clinical potential of this very promising imaging procedure in the detection of breast cancer.

Finally, we thank Dr. Aktolun for reminding us that we are nostalgic regarding the use of the prefix "scinti-". We are proud of our medical specialty and we do not hesitate to use the term "scinti-" to make distinction with other types of imaging modalities.

We hope that the use of scintimammography with high-quality images will expand and help our clinician colleagues to better evaluate patients with breast cancer.

REFERENCE

1. Taillefer R, Robidoux A, Lambert R, Turpin S, Laperrière J. Technetium-99m-sestamibi prone scintimammography to detect primary breast cancer and axillary lymph node involvement. *J Nucl Med* 1995;36:1758–1765.

Raymond Taillefer
Ardré Robidoux
Raymond Lambert
Sophie Turpin
Jean Laperrière
Hotel-Dieu de Montreal
Montreal, Quebec, Canada