REPLY: I thank Drs. Freeman and Ziessman for their comments on my editorial regarding SPECT V/Q imaging (1).

I understand Dr. Freeman’s point that problems can arise if a test is too sensitive. It seems to me that there are two ways to approach the problem of detecting and reporting small emboli that are clinically insignificant and do not require therapy. One is to not detect them and the other is to appropriately report them. The use of a lower-sensitivity approach, such as planar ventilation–perfusion (V/Q) imaging, certainly will avoid detection of small emboli. However, there are moderate-sized emboli, particularly in more medial lung, that cannot be visualized with planar V/Q and are clinically significant. Currently, we really do not know much about the prognosis or the need for treatment of small emboli, and the only way this issue can be studied is by using V/Q SPECT. This is a significant point raised in the European Association of Nuclear Medicine guidelines (2). Once the significance of smaller pulmonary emboli is better established, V/Q SPECT guidelines will need to be refined to determine which patients need treatment. Even if the high sensitivity of V/Q SPECT results in a small number of people being treated for trivial disease, because of its higher specificity V/Q SPECT is also likely to result in a decreased number of patients being overtreated whose lung scans are “nondiagnostic,” that is, not normal or high-probability (3). It is likely at Montefiore that few lung scans are nondiagnostic, but in the rest of the country this is not an uncommon outcome.

Dr. Ziessman is concerned that 99mTc-Technegas (Cyclomedica Ltd.) is required to obtain high-quality SPECT ventilation images that are needed as part of V/Q SPECT imaging. I agree with him that Technegas is the best agent, but aerosol imaging with 99mTc-sulfur colloid generates remarkably high-quality tomographic scans in most patients. The approach we use in Iowa results in a set of high-quality planar images as well as the tomographic images, so the interpreter can always fall back on evaluating the planar images. I agree that we need to try to convince the Food and Drug Administration to approve Technegas, but in the meantime we should move ahead with aerosol ventilation imaging and broadly adopt V/Q SPECT imaging.

REFERENCES

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