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Rubidium-82 PET—Essential or Not?

TO THE EDITOR: I read the article by MacIntyre et al. (1) with interest and surprise. In 202 consecutive patients, they identified 27 with normal (presumably stress) ^{201}Tl SPECT studies who were found to have ^{82}Rb PET perfusion abnormalities. For reasons unspecified (“complicated by the large variations in the time of revascularization following the PET procedure and the uncertainty of whether any revascularization had been planned before the studies”), 17 of these patients subsequently underwent myocardial revascularization. The authors contend that ^{82}Rb PET “must then be considered necessary to provide appropriate medical care for these patients” and that there is “serious deficiency in conventional health care if one were to rely on ^{201}Tl -SPECT imaging.” Hold on!

This study provides neither evidence of benefit to patients by virtue of having undergone myocardial revascularization, nor evidence that revascularization was in some way influenced by PET outcomes. While ^{201}Tl -SPECT has well established prognostic value and has been widely applied to stratify coronary risk, one cannot assume that a diagnostically more sensitive test will have greater prognostic accuracy. MacIntyre et al. should consider that their thallium “false-negative” studies might be “prognostically true-negative” so that PET “true-positives” become “prognostically false-positive.” If so, their 17 patients have been needlessly exposed to the expense, discomfort, risk and worry of PET imaging, and perhaps, of myocardial revascularization.

These authors’ contention that ^{82}Rb PET is “the procedure of choice” is unsupported by their findings.

REFERENCE

1. MacIntyre WJ, Go RT, King JL, et al. Clinical outcome of cardiac patients with negative thallium-201 SPECT and positive rubidium-82 PET myocardial perfusion imaging. *J Nucl Med* 1993;34:400-404.

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REPLY: Dr. Burns is correct in that this study (1) did not provide evidence of benefit to patients who had undergone revascularization following diagnosis by PET. Patient benefit involves more complicated analyses that are just now starting to appear in the literature, such as Eitzman et al. (2), a topic we will watch with interest. As Burns (3) mentions, ^{201}Tl myocardial SPECT has well established prognostic value, and it is expected that somewhat similar values will be found for ^{82}Rb PET.

As we stated in our report, it is difficult to assess what influence the PET procedure had on the decision to intervene. We like to think that our study was the most important factor in the clinician’s decision. This decision is not made by nuclear medicine, alas, but by the referring physician who must weigh all information derived from all sources.

It is for that reason that we believe we should provide the referring physician with the most accurate data possible. In this study, PET data were consistent with the management decision and contrary SPECT data were ignored.

We believe that ^{82}Rb PET is still the “procedure of choice.” It would be unfair to the referring physician and presumptive on our part to assume the role of prognostician and change our “false-negative” reading and substitute a “prognostically true-negative” (3) reading.

REFERENCES

1. MacIntyre WJ, Go RT, King JL, et al. Clinical outcome of cardiac patients with negative thallium-201 SPECT and positive rubidium-82 PET myocardial perfusion imaging. *J Nucl Med* 1993;34:400-404.
2. Eitzman D, Ziad A, Kanter HL, et al. Clinical outcome of patients with advanced coronary artery disease after viability studies with positron emission tomography. *J Am Coll Cardiol* 1992;20:559-565.
3. Burns RJ. Rubidium-82 PET—essential or not? [Letter]. *J Nucl Med* 1993; 34:1834.

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Interobserver Variability in Lung Scintigraphy Interpretation

TO THE EDITOR: We read with interest the article by Scott and Palmer (1) on the interpretation of lung scintigraphy in patients with clinically suspected pulmonary embolism. The authors conclude that in spite of attempts to adhere to an established diagnostic algorithm (2), observer variability remains considerable and may lead to diminished diagnostic accuracy.

Interobserver variability is inherent in any diagnostic technique and its role in the scintigraphic diagnosis of pulmonary embolism has been evaluated extensively (3-5). Recently, we evaluated the potential effect of the use of an anatomical lung segment chart on observer variability in the interpretation of lung scans (6). Readers drew their findings into the chart, thus leading to a significant and clinically important reduction in both intraobserver and interobserver variability.

REFERENCES

1. Scott, JA, Palmer EL. Do diagnostic algorithms always produce a uniform lung scan interpretation? *J Nucl Med* 1993;34:661-665.
2. The PIOPED investigators. Value of the ventilation-perfusion scan in acute pulmonary embolism: results of the Prospective Investigation of Pulmonary Embolism Diagnosis (PIOPED). *JAMA* 1990;263:2753-2759.
3. Hoey JR, Farrer PA, Rosenthal LJ, Spengler RF. Inter-observer variability