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Acute Myocardial Infarction Imaged with ^{99m}Tc-Stannous Pyrophosphate and Thallium-201: A Clinical Evaluation

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Twenty-six patients suspected of having acute myocardial infarction (MI) were imaged with both ²⁰¹Tl and ^{99m}Tc-PP. Myocardial images were obtained and stored on nine-track magnetic tape for later retrieval. The images were simultaneously recorded on an Ohio Nuclear Series 150 data system.

Patients received an intravenous injection of ²⁰¹Tl (2 mCi) and imaging was started within 10 min postinjection. A minimum of three views was obtained. After ²⁰¹Tl imaging, patients received an intravenous injection of ^{99m}Tc (15 mCi) tagged to 5 mg of stannous pyrophosphate.

15 30

Selected manuscripts from the issues of *The Journal of Nuclear Medicine* published 15 and 30 years ago.

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Images were obtained 1 hr later in the anterior, left lateral, and one or more LAO projections.

The ^{99m}Tc-PP images were graded from 1 to 4, depending on the activity over the myocardium. The ²⁰¹Tl images were compared with images previously obtained in six patients with no evidence of prior or acute MI. The gross size of abnormal areas on the ^{99m}Tc-PP and the ²⁰¹Tl scintigrams were compared by considering areas involved on the three views.

Twenty-four of these 26 patients had acute MI documented by enzyme and ECG changes. Of these patients, 22 had positive ^{99m}Tc-PP scintigrams at the time

of sequential imaging, in which the location of increased uptake correlated with the ECG location. In all patients with acute MI, ²⁰¹Tl scintigrams were abnormal, showing defects in the ventricular ring. Comparisons of ^{99m}Tc-PP and ²⁰¹Tl in the areas of abnormality were made on a crude quantitative basis.

If ^{99m}Tc-PP can identify and size acute anterior or lateral MI as suggested, what is the advantage in dual imaging with a potassium analog such as ²⁰¹Tl? The answer may be found in the 15 patients in whom the ²⁰¹Tl images showed defects that were definitely larger than the areas of ^{99m}Tc-PP uptake and usually included areas other than those suspected of being acutely infarcted. While ²⁰¹Tl may add little new information for patients with only normal and acutely infarcted myocardium, they do provide additional valuable information as to the integrity of the total myocardium in patients with superimposed chronic infarction or ischemia. ■

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Renal Scintiscans in the Diagnosis of Renal Vascular Disease

Thomas P. Haynie, Bruce H. Stewart, Mohammed M. Nofal, Edward A. Carr, Jr., and William H. Beierwaltes

Along with the recent interest in renal hypertension, there has been a search for better diagnostic tests for renal vascular disease. The radioisotopic renogram has been of use, but one of its main deficiencies is a lack of anatomic information. Both ¹³¹I-hippuran and ²⁰³Hg-neohydrin have been successfully employed for renal scanning. We report the application of scintillation scanning to the problem of renal vascular disease.

Iodine-131-hippuran (200 mCi) was in-

fused at 2-4 mCi/min. Imaging was begun 20 min after infusion and continued for 30-40 min. Neohydrin (100 mCi) was injected intravenously and scanning was begun 40 min postinjection. A photoscanning device with a 19-hole collimator was used.

Renal scintiscans were performed on 40 patients suspected of having renal hypertension. Fourteen of the 40 patients subsequently demonstrated renal vascular lesions at surgery. Five patients have unilateral stenosis and five had bilateral renal artery stenosis. Eight patients had atherosclerotic occlusions of the renal arteries. One patient had bilateral renal cysts and possibly had renal ischemia due to pressure on contiguous vessels. Four patients had segmental lesions. For the most part, no long-term conclusions can be drawn re-

garding the response to renal vascular surgery in these patients since all patients underwent surgery during the past 10 mo. The accuracy of each preoperative diagnostic procedure was evaluated in regard to its ability to detect significant ischemia or infarction and to distinguish unilateral from bilateral disease.

Renoscans have proven particularly useful in evaluating the functional state of renal tissue distal to arterial lesions, detecting small areas of viable tissue, and in revealing space-occupying lesions. Iodine-131-hippuran renal scintiscans have been disappointing. The addition of anatomic information to the radioisotope procedure in the evaluation of renal vascular disease patients has proven fruitful in a small series of cases and deserves further application. ■