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The Official Publication of
The Society of Nuclear Medicine, Inc.
Comparison of Rubidium-82 PET and Thallium-201 SPECT

In a series of 202 patients with previous coronary arteriography, the sensitivity, specificity, and accuracy of 82Rb PET were 93%, 78%, and 90%; for 201TI SPECT 76%, 80%, and 77%, respectively. Page 1899

PET for Lung Tumor Diagnosis

The accuracy of PET studies using either MET or FDG for the differential diagnosis of non-calcifying lung tumors was prospectively tested on 46 cases. Page 1927

Pattern of Gallium-67 Distribution in Sarcoidosis

After assessing 67Ga uptake in 605 consecutive patients, the authors conclude that the simultaneous appearance of an intrathoracic lymph node pattern resembling the greek letter lambda and a symmetrical, lacrimal gland and parotid gland uptake (panda appearance), with bilateral symetrical hilar lymphadenopathy on chest X-ray, represents a pattern highly specific for sarcoidosis. Page 1909

RVG in Cardiac Transplantation

Radionuclide ventriculograms (247) were performed on 94 patients. At 3 days post-transplantation, 19% displayed left ventricular dysfunction and 41% isolated right ventricular dysfunction. Page 1932

A Simplified Carbon-14-Urea Breath Test

Carbon-14-urea (110 kBq) was administered orally to 18 normal subjects and 82 patients, with Helicobacter infection. The exhaled 14C was trapped at 10-min intervals for 90 min. In 82 patients, a sensitivity of 90.2%, a specificity of 83.8%, and a positive predictive value of 90.2% was found. Page 1940

SPECT Quantitation of Iodine-131

The validity of SPECT measurement of 131I concentration was tested in vitro in phantoms and in vivo by measuring bladder urine concentrations. Page 1945

Total-Hip Arthroplasty

Indium-111-labeled leukocyte images of 92 cemented total hip arthroplasties were correlated with final diagnoses. The authors conclude that, while variable periprosthetic activity makes leukocyte imaging alone unreliable for diagnosing infection, the addition of sulfur colloid imaging results in a highly accurate diagnostic procedure. Page 1950


Thallium Scanning

Nineteen patients with thyroid cancer had a total of 24 radiiodine scans, 33 thallium scans, and 10 MRI examinations. In nine thallium scans, neck bed activity was observed. Seven thallium scans detected significant residual or metastatic disease. Thyroid cancer was also detected on seven MRI studies. Page 1958

Indium-111-Antimyosin Scintigraphy in Patients with Breast Cancer

Antimyosin scintigraphy of 20 women undertaken after 10 cycles of chemotherapy for treatment of advanced breast cancer indicated the presence of myocardial damage in these patients. Page 1965

Editorial: Antimyosin Cardiac Imaging: Will It Play a Role in the Detection of Doxorubicin Cardiotoxicity. Page 1970

Non-Tumored Uptake of Indium-111-Labeled Monoclonal Antibodies

Scans of 75 patients, who had undergone exploratory surgery following radioimmunoscintigraphy with 111In-ZCE 025 or 111In-CYT-103, were reviewed in conjunction with operative and histopathologic reports. Page 1975
Noninvasive Measurement of Renal Blood Flow

Thirty-two patients underwent renal revascularization, six of whom showed improvement in blood pressure control at 6 mo.

Editorial: Sombreros Cientificos

Perfusion Imaging with 62Cu-PTSM and PET

Generator-produced positron-emitting 62Cu was synthesized in a form suitable for intravenous injection. In pilot studies 62Cu produced high quality brain and heart images with PET. The authors conclude that generator-produced radionuclides may be capable of expanding PET applications to centers without access to a cyclotron.

Glycoconjugate Synthesis Imaging of Tumors

Using the tissue sampling method with five tumor models, different radioactivity profiles were found: a nearly constant level in Lewis lung carcinoma and different clearance patterns in others.

Radiolabeling of Erythrocytes with Technetium

The authors suggest that transport of the anion is inhibited after incubation at low temperature. Transport is also decreased by two well-known inhibitors of the band-3 anion transport system and is not affected by inhibition of the Na/K/Cl cotransport system.

Technetium Uptake in Bone

Uptake of labeled phosphate was studied in an animal model of primary osteogenesis following tibial marrow injury. Isotope uptake on Day 6 in the whole bone was increased compared to controls. On this day, an increase in vesicular diameter and distance from the calcified front was observed.

Dopamine D2 Receptor and N-11C-Methyl-Benperidol

A new dopamine D2 receptor radiotracer, N-11C-methyl-benperidol was prepared and its in vivo biologic behavior in mice and a baboon was studied.

Technetium-99m-Human Polyclonal IgG

Labeled IgG was administered to normal rats and biodistribution was determined at 2, 6, and 16 hr. Inflammation imaging properties of 99mTc- and 111In-IgG were compared in rats with deep-thigh infections.

Clinical Pathologic Conferences: Indium-Labeled Scan in Evaluating Osteomyelitis

Phosphorus-32-Colloidal Chronic Phosphate

A 68-yr-old male with agnogenic myeloid metaplasia was given 32P-colloidal chronic phosphate intrapericardially. Estimated dosimetry for this mode of therapy is presented.

Telangiectatic Focal Nodular Hyperplasia

A 9-cm lesion of telangiectatic focal nodular hyperplasia was incidentally identified in a 31-yr-old female.

Technetium-99m-Hexamibi SPECT in Pediatric Brain Tumor

A 5-yr-old female with a brain stem astrocytoma showed marked focal uptake of 99mTc-Hexamibi at the site of tumor recurrence as defined by biopsy and a prior 201TI SPECT study. This radiopharmaceutical may deserve further study for its potential in SPECT imaging of brain tumors.

In Vivo Cross-Match of an Anti-Gerbich

A nationwide search for rare Gerbich-negative blood located only seven units, which was soon exhausted. By using an in vivo crossmatching method, the authors demonstrated that this anti-Gerbich antibody did not cause red blood cell destruction.

Editorial: In Praise of the Mighty Red Cell

Interactive Three-Dimensional Region of Interest Analysis

An interactive computer program was developed to align a three-dimensional region of interest model to 99mTc-HMPAO SPECT studies of the brain. The program proved useful in defining ranges for normal cerebral perfusion in a healthy adult population.

Program for PET Image Alignment

A program to align PET images from multiple studies on the same subject allows alignment of two images with a fineness of one-tenth of the width of a pixel. Indications and effects of misalignment were assessed in eight subjects from a placebo-controlled double-blind crossover study.

Beta Camera for Imaging Charged-Particle Emitting Radionuclides

A detection system, based on microchannel plates, has been constructed to image charged particles emitted by radionuclides in biomedical samples.

Three-Dimensional Images of Myocardial Oxygen Consumption

Following i.v. bolus injection, data are collected for 20–30 min. Time-activity curves for each pixel in the transaxial slices are fit to a monoexponential function to determine the washout rate, producing functional images of myocardial oxygen consumption. A previously developed method is then used to generate three-dimensional images.