The Journal of Nuclear Medicine

JNM

Volume 31, Number 12 • December 1990

Comparison of Rubidium-82 PET and Thallium-201 SPECT 1899

Gallbladder Perforation 1915

Perfusion Imaging with ^{62}Cu-PTSM and PET 1989

Radiolabeling of Erythocytes with Technetium 2004

A Full Table of Contents Begins on Page 4A, Annotations on Pages 7A-8A

The Official Publication of
The Society of Nuclear Medicine, Inc.

In This Month's Issue of

JNM

Comparison of Rubidium-82 PET and Thallium-201 SPECT

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

Editorial: Planar, SPECT, PET: The Quest to Predict the Unpredictable.....*Page 1906*

Patterns of Gallium-67 Distribution in Sarcoidosis

After assessing ^{67}Ga uptake in 605 consective 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*

Gallbladder Perforation

In a retrospective analysis of cholescintigrams and sonograms of 36 consecutive patients, cholescintigraphic criteria of perforation were detected in 50% of the cases, while only 18% of patients presented with sonographic criteria of perforation. The authors conclude that both methods are relatively insensitive for the detection of gallbladder perforation.....*Page 1915*

Radionuclide Esophageal Transit Studies

RETS and EMS studies were performed on 109 consecutive patients without a previous history of esophageal surgery. No clinically significant motor disorders were missed by RETS.....*Page 1921*

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*

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 *Heliobacter* infection. The exhaled ^{14}C 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 ^{131}I 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*

Editorial: Diagnosing Prosthetic Joint Infection.....*Page 1955*

Thallium Scanning

Nineteen patients with thyroid cancer had a total of 24 radioiodine 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 ^{111}In-ZCE 025 or ^{111}In-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. .....*Page 1980*

Editorial: Sombreros Cientificos .....*Page 1986*

Perfusion Imaging with ^{62}Cu-PTSM and PET

Generator-produced positron-emitting ^{62}Cu was synthesized in a form suitable for intravenous injection. In pilot studies ^{62}Cu 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 .....*Page 1989*

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 .....*Page 1997*

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 co-transport system.....*Page 2004*

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. .....*Page 2011*

Dopamine D2 Receptor and N-^{11}C-Methyl-Benperidol

A new dopamine D2 receptor radiotracer, N-^{11}C-methyl-benperidol was prepared and its in vivo biologic behavior in mice and a baboon was studied .....*Page 2015*

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 ^{99m}Tc- and ^{111}In- IgG were compared in rats with deep-thigh infections. .....*Page 2022*

Clinical Pathologic Conferences: Indium-Labeled Scan in Evaluating Osteomyelitis .....*Page 2029*

Phosphorus-32-Colloidal Chromic Phosphate

A 68-yr-old male with agnogenic myeloid metaplasia was given ^{32}P-colloidal chromic phosphate intrapericardially. Estimated dosimetry for this mode of therapy is presented.....*Page 2034*

Telangiectatic Focal Nodular Hyperplasia

A 9-cm lesion of telangiectatic focal nodular hyperplasia was incidentally identified in a 31-yr-old female. .....*Page 2037*

Technetium-99m-Hexamibi SPECT in Pediatric Brain Tumor

A 5-yr-old female with a brain stem astrocytoma showed marked focal uptake of ^{99m}Tc-Hexamibi at the site of tumor recurrence as defined by biopsy and a prior ^{201}Tl SPECT study. This radiopharmaceutical may deserve further study for its potential in SPECT imaging of brain tumors .....*Page 2040*

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 cross-matching method, the authors demonstrated that this anti-Gerbich antibody did not cause red blood cell destruction .....*Page 2042*

Editorial: In Praise of the Mighty Red Cell .....*Page 2044*

Interactive Three-Dimensional Region of Interest Analysis

An interactive computer program was developed to align a three-dimensional region of interest model to ^{99m}Tc-HMPAO SPECT studies of the brain. The program proved useful in defining ranges for normal cerebral perfusion in a healthy adult population.....*Page 2046*

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 .....*Page 2052*

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.....*Page 2058*

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. .....*Page 2064*