

M. Bone and Joint

1542

STUDIES ON BONE METABOLISM BY BONE SCINTIGRAM AGENTS. T. Seki Institute of Radioisotopes, Nippon Dental University, Tokyo

This report is regarding the studies on the bone metabolism by bone scintigram agents. The bone scintigram agents were used with MDP(P-32), EHDP(P-32), Pyrophosphate(P-32), Citrate(Ca-45), and EDTA(Ca-45). The bone metabolic agent was used with H_3PO_4 (P-32) and $CaCl_2$ (Ca-45). The Animals were used with a DDN mouse of 5 weeks. The measurement time was taken from 5 minutes to 16 hours after injection bone seeker agents. The measurement part of a bone was the epiphyseal part, the diaphyseal part and the Callus (14 days after fracture) by tibia.

Results:

- 1) Citrate and Ca-45($CaCl_2$) were like bone metabolic agents.
- 2) Pyrophosphate and P-32(H_3PO_4) were like bone metabolic agents.
- 3) MDP and EHDP were the same bone metabolism.

But these agents were differ from Ca-45($CaCl_2$) and P-32(H_3PO_4) metabolism.

1543

CLINICAL ANALYSIS OF DIFFUSELY INCREASED Tc-99m-MDP UPTAKE IN BOTH KIDNEYS (HOT KIDNEYS). K. Koizumi, N. Tonami and K. Hisada Department of Nuclear Medicine, Kanazawa University Hospital, Kanazawa

Patients with diffusely increased uptake in both kidneys (often referred to as "hot kidneys") on Tc-99m-MDP bone imaging were clinically evaluated. Among 3017 patients reviewed, this finding was seen in 19 patients (0.63%): six with liver cirrhosis, three with diabetes mellitus, two with lung cancer, four with hematologic diseases, and four with other malignant diseases. Out of 19 patients only two showed clinically apparent renal dysfunction. Six patients showed increased serum iron level probably due to blood transfusion or liver dysfunction. Nine patients had received anticancer drugs. Two patients with liver cirrhosis also showed increased Ga-67 uptake in both kidneys. Possible causes of "hot kidneys" were suggested to be liver cirrhosis, diabetic nephropathy, iron overload, and anticancer drugs.

1544

EXTRAOSSEOUS ACCUMULATION OF Tc-99m PHOSPHATE COMPLEXES. K. Hayasaka, H. Mitsuhashi, J. Hirose, A. Asano, S. Nishino, Y. Ishikawa, Y. Uekita, Y. Kikuchi and K. Amoh. Department of Radiology, Asahikawa Medical College, Asahikawa

We report 14 cases of extraosseous accumulation of Tc-99m phosphate complexes with the soft tissue tumor, such as primary lung cancer, hepatoma, neuroblastoma, liver metastasis from adrenal gland cancer and rectal cancer, lymph node from breast cancer and liposarcoma, from 999 cases.

Fine calcifications were detected in 4 cases, necrosis detected in 8 cases, hypervascularity shown in 6 cases by Angiography, RI angiography and historical examinations.

We suspected that the mechanism for extraosseous examination of tracers are related to the calcification (involving calcium in the damaged cells), necrosis and local hypervascularity.

1545

ACCUMULATION OF 99m-Tc-PHOSPHORUS COMPLEXES IN THE SKELETAL MUSCLE HERNIA, POLYMYOSITIS, AND ACUTE MYOSITIS. M. Hino, M. Fukunaga, C. Shigeno, I. Yamamoto, S. Dokoh, R. Morita, and K. Torizuka Department of Nuclear Medicine, Kyoto University School of Medicine, Kyoto

Three cases of muscle uptake of 99m-Tc-phosphorus complexes are presented and discussed. Muscle damage by many causes are considered to be responsible to abnormal muscle tracer uptake. Case 1: a 28-year-old male was noted to show increased muscle uptake of tracer during bone imaging. The area of tracer accumulation corresponded to the location and extent of the herniated muscle tissue observed at surgery. Laboratory data were normal including serum calcium, phosphorus, alkaline phosphatase, and creatine phosphokinase. Microscopically muscle degeneration was observed without evidence of necrosis, hyperemia, or microcalcification. Case 2: a 26-year-old female demonstrated extensive tracer uptake in the muscles of bilateral thigh. On microscopy, fiber degeneration with predominantly mononuclear cell infiltration was noted. Case 3: after repeated excessive exercise (push-ups), a right-handed boy, aged 14 years, was referred for bone scan because of left arm pain. On bone imaging, there was diffuse uptake of radiotracer in the left arm muscles.