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COMPARISON OF SEVERAL METHODS IN EVALUATION OF BONE CHANGES ON PRIMARY BILIARY CIRRHOSIS. S. Shiomi, N. Ikeoka, S. Seki, S. Harihara, T. Kuroki, K. Kobayashi\*, T. Okamura, S. Taniguchi, T. Fukuda, H. Ochi, Y. Onoyama\*\* and T. Monna\*\*\*.  
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Primary biliary cirrhosis (PBC) is often associated with osteomalacia and osteoporosis. In order to evaluate the bone disease, 16 patients with PBC were studied using different procedures; microdensitometry (metacarpal bone), bone mineral analysis (radius), measurement of EMI number with X-CT (frontal bone), bone scintigraphy (whole body).

Serum Ca, P, PTH, ALP,  $25(\text{OH})\text{D}_3$ ,  $1-25(\text{OH})_2\text{D}_3$  and osteocalcin were measured. Serum osteocalcin was measured by radioimmunoassay (according to the method of Price).

Results were as follows; The lower level of  $\Delta\text{Gmax}/\Delta\text{Gmin}$  was shown in 5 of 12 patients with PBC. The lower value of radial mineral content was shown in 3 of 10 patients with PBC and the lower value of EMI number in 3 of 7 patients with PBC. But, none of the patient with PBC has abnormal finding on the bone scintigraphy.

In conclusion, these procedures are useful for evaluating slight changes of bone in primary biliary cirrhosis.

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STUDY ON BONE SCINTIGRAPHY IN CHILDREN  
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In our series of radionuclide imaging on 15010 cases, reported about 4 years ago, liver scintigraphy was most frequently done in adults and other examinations were performed in order as follows: Ga, bone, heart muscle, heart pool and thyroid. In children, numbers of scintigraphy were in the order of kidney, heart muscle, lung, Ga, bone and liver.

In this series on 6259 cases, in the last one year, numbers of scintigraphy were in the order of Ga, bone, liver, heart muscle and heart pool in adults, kidney, Ga, bone, lung and liver in children.

Incidence of indication in the bone scintigraphy was as follows:

adults: metastasis 74.4%, primary bone tumor 7.4%, fracture 3.3%, arthrosis deformans 2.8%, inflammation 2.7%

children: primary bone tumor 43.3%, inflammation 22.8%, metastasis 6.8%, soft part tumor 6.8%, pain of unknown origin 6.8%.

Thus, indication of bone scintigraphy in children is different from in adults.

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CLINICAL STUDY OF BONE SPECT USING SCINTIPAC 2400.

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Clinical usefulness of bone SPECT using Scintipac 2400 was studied. Scintillation camera ZLC-7500 equipped LEAP collimator was used. Data collection was performed using 360 degrees rotation and 64 images were collected. The time for each image was 30 seconds. After intravenous administration of 20mCi MDP planar images and SPECT were obtained in the patients with bone tumor, trauma, etc. and cases operated orthopedically. SPECT images were compared with planar images, X-film, and CT.

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TWO-COMPARTMENT ANALYSIS OF DYNAMIC BONE SCINTIGRAPHY. (STUDY OF K AND  $\Lambda$  ON EXPERIMENTAL BONE INJURY). T. Euchi, S. Wada and K. Maeda. The Nippon Dental University, School of Dentistry at Niigata.

In the past annual meeting we reported the 2-compartment model analysis of dynamic bone scintigraphy to disease of maxillofacial region. There was significant difference among variables of regional bone diseases, which reflected bone blood flow (K) and bone metabolism ( $\Lambda$ ). In this time, we measured K and  $\Lambda$  of healing process in the experimental bone injury of rabbit tibia, and studied about each correlation among K,  $\Lambda$ , bone blood flow and bone metabolism. The examination was performed by intravenous administration of Tc-99m MDP (2.5mCi/Kg). And sequential image data were stored in computer immediately after i.v. injection to an hour, furthermore the data of 2hrs and 4hrs were stored. At 3, 7, 14, 21, 30, 60 and 90 days after making experimental bone injury, same measurements were performed. Simultaneous measurement of regional bone blood flow by hydrogen gas clearance method, quantitative assessment of healing process of bone injury by photodensitometry and measurement of Ca, P and Al-p in the serum were performed. In conclusion, significant correlation between K and regional bone blood flow was found in this experiment.