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CLINICAL EVALUATION OF STRESS FRACTURES OF TARSAL BONES USING BONE SCINTIGRAPHY. S.Asai,A.Furuta,T.Hashizume,K.Mannoji,M.Iio. Kanto Rosai Hospital,Kawasaki,University of Tokyo,Tokyo.

The evaluation of bone scintigraphy of stress fractures had been reported in the previous meeting of this society. With the increase of cases, further evaluation of tarsal bone stress fractures was made. Ten males and eight females were examined. They are all athletes. Most of the patients are between the age of 10 to 19. There were 9 patients with running type sports, 5 with jumping type sports, 5 with rugby, 2 with other type of sports. Stress fractures of navicular and calcaneus were most often seen. There were eight cases for each bone. Two cases had stress fractures of navicular bones bilaterally. Stress fracture of cuneiforme occurred in 4 patients and cuboides in one patient. Two patients had stress fracture of tarsal bone complicated with other bone stress fractures, one had in right calcaneus and right tibia, the other had in left navicular and left fourth metatarsal bone. The radiographs of tarsal bones except calcaneus showed negative study.

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QUANTITATIVE EXAMINATION OF THE BONE CHANGES ON CHRONIC DIALYZED PATIENTS. T.Okamura,M.Hata,S.Taniguchi,Y.Inoue, H.Ochi,Y.Onoyama,Y.Shimonishi,M.Ômura, H.Ikeda and H.Morii.Osaka City University of Medical School,Osaka.

Subtotal parathyroidectomy (PTX) was performed on eleven patients on the chronic dialysis with renal osteodystrophy in order to improve bone lesions. These patients were examined before and after subtotal PTX using 6 different procedures: conventional radiography (phalanges, calvarium, vertebra), microdensitometry (metacarpal bone), bone mineral analysis (radius) measurement of EMI number with X-CT (frontal bone), bone scintigraphy (whole body) and measurement of radionuclide (RN) activity ratio (frontal bone/brain) with single photon emission CT (SPECT).

With conventional radiography, we can see the improvement of the bone lesion after 3 months of surgery. The change of microdensitometry value and BMA value is smaller than that of the EMI number and the RN activity ratio. In bone scan the diffuse increased radioactivity in the calvarium, maxilla and mandible of 10 patients showed a marked decrease (RN activity ratio) after surgery. Our new method with SPECT is the most useful to detect the bone changes sensitively and quantitatively, because it shows change in RN activity ratio the most clearly of the 4 quantitative procedures. We have tried to apply these methods to detect the bone changes after medical treatment with the drug (elcitonin).

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A COMPARATIVE STUDY OF MRI AND BONE SCINTIGRAPHY ON VERTEBRAL DISEASE. M.Nakatani,T.Sekiya,Y.Hata,K.Kawakami and S.Tada. Department of Radiology,School of Medicine, Jikei University,Tokyo.

Nineteen patients with various vertebral abnormalities, 13 vertebral metastasis, 1 cervical caries, 1 granular cell tumor of lumbar spine, and 4 normal cases were examined.

In 12 patients, MRI showed abnormalities in same region to bone scintigram. In another 2 patients, MRI did not demonstrate disorders on bone scintigram, because of unsuitable section and of low spatial resolution of MRI. 5 patients, MRI demonstrates abnormal findings, whilst bone scintigram was normal. Previous bone scintigram in 3 out of these 5 patients before treatment have shown abnormal findings as MRI. Remaining 2 patient are the cases of post irradiation and diffuse bone metastases.

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CLASSIFICATION OF BONE SCINTIGRAMS IN HEMODIALYSIS PATIENTS. K.Ishibashi,Y. Yoshikawa,K.Suzuki,M.Mashimo,K.Nishimura and T.Miyamae. Saitama Med. School,Saitama.

Bone scintigrams of 75 dialysis patients using Tc-MDP could be divided into two groups; Group I (56) in which uptake of the soft tissue was increased and uptake of the bone decreased, and Group II (19) in which uptake of the soft tissue was decreased and the uptake of the bone increased, visually. Patients in Group I and II were further classified into four subgroups: Group I_A (articular type: 21) in which uptake around the joint was relatively increased and Group I_B (reduction type: 35) in which uptake was decreased in the whole bone. Group II_A (spinal type: 14) in which uptake of the spine was particularly increased and Group II_B (cranio-facial type: 5) in which uptake in the cranio-facial region was increased. All 75 dialysis patients were compared with 146 subjects with normal bone scintigram in terms of B/S ratio of the cranial bone, jaw bone, lumbar vertebra and femoral bone and the ratio of epiphysis uptake to diaphysis uptake (E/D ratio) in the femoral bone. The B/S ratio was low in Group I and Group II for each site, and the E/D ratio was markedly high in Group I_A. Group I_A and Group II were histobiochemically estimated to have had osteomalacia and secondary hyperparathyroidism, respectively. It was considered that the above-mentioned visual classification and semiquantitative study were useful for evaluating the pathological condition of renal osteodystrophy.