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CLINICAL EVALUATION OF BONE SCINTIGRAMS IN CHRONIC DIALYSIS PATIENTS. T.Suematsu,M. Morita, Y. Yamamoto, K. Nabeshima, S. Yoshimoto, T. Maeda, K. Okuda, R. Odani. Department of Radiology, Kohchi Medical School and Kohchi Central Hospital. Kohchi.

Bone scintigraphy was performed in 38 chronic dialysis patients, and their findings were evaluated in contradistinction to blood chemistry values (ALP, PTH, Ca, P, etc.). The results are as follows: 1) 30 patients (79%) had increased radioactivity of bone on scintigrams. In these cases, the ALP and / or PTH value trended to increase. 2) The scintigram of the 20 patients (53%) revealed high background activity. In most of such cases, the ALP and PTH values are within normal limits. 3) The common sites of increased radioactivity are the calvarium, mandibula, costochondral synchondrosis, thoracic spine, lumbar spine and knee joint, etc.. For the purpose of early detection of renal osteodystrophy, care must be given to these sites in the bone images.

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BONE SCAN USING ^{99m}Tc -MDP IN CHRONIC DIALYSIS PATIENTS. K. Ishibashi, Y. Yoshikawa, H. Kitagawa, S. Kanagawa, T. Tomita, T. Miwa, H. Kikuchi, M. Mashimo, K. Suzuki, K. Nishimura, Y. Tsubogo, and T. Miyamae. Saitama Medical School of Medicine. Saitama.

It is said that renal osteodystrophy is due to secondary hyperparathyroidism and osteomalacia. Measurement of Bone-to-Soft tissue ratio (B-S ratio) has been proposed as a useful index of metabolic bone disease. We studied the value of B-S ratio in 32 patients on regular hemodialysis and 12 controls. We measured the B-S ratios by using computer to define regions of interest around vertebra, cranium, femur, and soft tissue just below the kidney on TV image. The B-S ratios were calculated as follows; vertebra/soft tissue, cranium/soft tissue, and femur/soft tissue. We found correlations between these B-S ratios. B-S ratio (vertebra/soft tissue) has wide distributions in patients as well as controls. So it is thought to be the best criterion when we evaluate metabolic bone diseases. Five patients of hemodialysis had decreased bony uptake. But its true reason is still obscured. Two of them had Diabetes Mellites and two of them had Reumatoid Arthritis. They all had restraint of movements.

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CHANGE IN BONE SCINTIGRAMS OF EPILEPTIC PATIENTS RECEIVING THE MEDICATION WITH ANTI-CONVULSANT DRUGS BEFORE AND AFTER ACTIVE FORM VITAMIN D₃ TREATMENT. K. Nishimura, T. Miyamae, M. Mashimo, Y. Igarashi, and T. Noguchi. Saitama Medical School. Moroyama, Saitama.

Serum Ca and P levels for the patients receiving antiepileptic medication were found lower than those for controls, suggesting metabolic bone diseases. Of 67 patients receiving antiepileptic medication, 5 patients (Group I) whose serum Ca or P levels are in the region of mean - 1xS.D. and 4 patients (Group II) whose values are in the region of mean - 2xS.D. were selected. The bone scans with ^{99m}Tc -MDP were performed prior to and after the 6 month and 12 month treatment of vitamin D₃ in these 9 patients. Many hot spots were seen in Group II and some in Group I. After 12 month treatment these previously demonstrated hot spots vanished and newly developed hot spots were few. There was no significant difference in bone to soft tissue ratios between Group I and II as well as between pre and after treatment. Since the scintigram of Group II gives the impression of slightly higher uptake than controls in the knee joint region, we analysed the uptake ratio of shaft of femur to knee joint. The ratios in Group II were lower than Group I or controls prior to the treatment. But the ratio increased with the treatment period, showing no significant difference between pre and after 12 month treatment.

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BONE SCINTIGRAPHY OF AMPUTATED LIMBS DURING REHABILITATION. Motohiro Nagai (Department of Orthopedics, Kanagawa Rehabilitation Hospital), Takashi Hayashi, Yoshio Hosonuma (Department of Radiology, Kanagawa Rehabilitation Hospital) and Shigeo Ohmori (Department of Orthopedics, Kanagawa Prefectural Atsugi Hospital)

Bone scintigraphy reveals changes in affected bones that reflect the existing disease activity. Even quite healthy bones and joints may, however, demonstrate a transient increase in RI uptake under a physical stress, e.g., weight bearing. We performed bone scintigraphy serially in lower extremity amputees in an attempt to examine the stump for its postsurgical changes and explore the effect of a physicommechanical stress caused by walking discipline with a fitted prosthesis on the bones of the healthy side. Method: Scintiscans of bones of both lower extremities were made immediately after amputation, at the beginning of walking discipline with a prosthesis and serially thereafter in 46 leg amputees. Results: In all cases a circumscribed area of RI accumulation was noted at the stump immediately after amputation. Soon after the amputees were started on rehabilitation program with a fitted prosthesis, they began to show an area of RI concentration in the mid-portion of the femur on the amputated side with a concurrent marked increase in RI accumulation in the knee and ankle joints on the healthy side. Later, with the elapse of time, RI concentration in these hot areas decreased gradually. From this study it seems warrantable to conclude that postsurgical follow-up observation of an amputated limb by means of bone scintigraphy is useful in the evaluation of the efficacy of training in rehabilitation.