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EVALUATION OF SKELETAL MUSCLE DISORDER WITH THALLIUM-201 WHOLE BODY SCINTIGRAPHY.

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Extent of pathologic changes of skeletal muscles were analyzed with thallium-201 whole body scintigraphy (WBS) in 29 cases of various kinds of neurogenic or myogenic muscular atrophy including muscular dystrophy (MD), spinal progressive muscular atrophy (SPMA), amyotrophic lateral sclerosis (ALS), cerebrovascular accident (CVA), and 14 normal controls (N).

After intravenous injection of 2 mCi of thallium-201, WBS was performed using rotating gamma camera with twin opposed large rectangular detectors in 15 minutes. WBS was reconstructed by taking the geometric mean of the anterior and posterior data, and counts at arms(A), forearms(F), thighs(T) and calves(C) were assessed.

WBS showed uniform tracer activity in 4 extremities and counts per pixel were same at each portion of As, Fs, Ts and Cs in N, and WBS showed bilateral or unilateral perfusion defects of F,T or C in MD, SPMA ALS and CVA, and of A in facioscapulo-humeral type of MD.

In conclusion, thallium WBS was considered to be a useful clinical tool in evaluating the extent and severity of muscular involvement of various kinds of neuromuscular disorders.

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CLINICAL UTILITY OF BONE SPECT IN ORTHOPAEDIC DISEASES.

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We have used bone SPECT for diagnosis of bone and joint diseases and evaluated its clinical utility. The present series contained 19 cases comprising 2 cases of ankylosing spinal hyperostosis (ASH), 1 case of ossification of the posterior longitudinal ligament (OPLL), 1 case of total hip replacement (THR) and 8 cases of sternocost-clavicular hyperostosis (SCCH). SPECT was performed 3 hr after intravenous administration of 20 mCi Tc-99m-MDP, using ROTA CAMERA combined with SCINTI-PAC 2400. As a result, an abnormal accumulation of activity was detected in the cervical vertebrae at the level of lesion in 2 cases of ASH, but diagnosis was difficult in Stage I or II ASH and OPLL. In pyogenic lumbar spondylitis, SPECT helped to clarify the affected level and the extent of lesion. In THR, while it was useful for the detection of complication such as loosening, the clear zone did not always agree with the image of accumulated activity. SPECT was useful in SCCH. In the study of uptake ratio which was allowed to serve as an indicator of the response of SCCH to EHDP (1-hydroxyethylidene diphosphonic acid disodium), a relatively high correlation was detected between drug dose and improvement rate.

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CLINICAL EVALUATIONS OF BONE SCINTIGRAPHY IN BENIGN TUMORS AND TUMOR-LIKE LESIONS OF BONE.

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We retrospectively evaluated the clinical values of bone scintigraphy in benign tumors and tumor-like lesions of bone. There were 10 cases of exostosis, 8 of fibrous dysplasia, 19 of non-ossifying fibroma, 7 of bone cyst, 5 of enchondroma and 12 other lesions. Bone scintigraphy was performed 4 hours after the intravenous administration of 5-15mCi of Tc-99m MDP. Scintigraphic findings were graded as (-), (+) and (++) according to the uptake in the lesion. Seven of 8 fibrous dysplasias showed (++) uptake while 6 of 10 exostosis had (+) uptake. There were two types of uptake. One was a homogenous distribution and the other was a ring-like distribution of the Tc-99m MDP. Two exostosis, one chondroblastoma, one bone cyst and one tumor-like lesion showed no uptake. Smaller lesion had a tendency to show less uptake. Since x-ray findings are more specific for the diagnosis of these lesions, the value of bone scintigraphy is limited.

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SCINTIGRAPHY OF PRIMARY BONE TUMORS.

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The investigation was performed on 74 cases of primary bone tumors and tumorous conditions, all of whom both Tc-99m-MDP and Ga-67-citrate examinations were carried out under 10 years. Histological diagnosis of them was certified by biopsy specimen or surgical resection. In 18 cases of malignant group excluding one case of multiple myeloma and one malignant fibrous histiocytoma, both scintigraphic studies showed abnormal accumulation. On 56 cases of benign group, the pathological accumulation of both scintigraphies was observed in 9 cases of fibrous dysplasia, 3 of chondroblastoma, 1 chondromyxoid fibroma, 3 out of 12 solitary bone cysts, 4 out of 11 osteochondromas, 4 of 8 giant cell tumors and 2 of 5 chondromas. However, 3 cases out of 12 solitary bone cysts, 1 of 11 osteochondromas and 2 of 4 non-ossifying fibromas did not show specific findings, another 24 cases had only Tc-99m-MDP uptake. The angiographic analysis additionally performed in 29 cases revealed malignant neovascularity excluding one malignant fibrous histiocytoma on whom no abnormal uptake was noticed at Ga-67-citrate examination.