Bone Marrow Distribution of $^{99m}$Tc-Sulfur Colloid in the Aged

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Studies on the bone marrow distribution of $^{99m}$Tc-sulfur colloid using scintillation camera, combining hematological examinations were carried out on 14 aged subjects (5 male and 9 female), whose mean age was 74 years ranging from 68 to 84 years. Mean red blood cell counts was $4.18 \times 10^6$ to $4.80 \times 10^6$. Mean hemoglobin level was 73.1% ranging from 64% to 80%. Mean leucocyte counts was 4823 ranging from 3930 to 7330. $^{59}$Fe ferrokinetics was studied on 6 subjects (3 male and 3 female). Serum iron level was in normal range. Plasma iron disappearance time was prolonged in 3 cases and was in normal range in other 3 cases. $^{59}$Fe utilization rate decreased in 2 cases and was in normal range in 4 cases. Successive body surface counting on the sacrum indicated low uptake of $^{59}$Fe in 4 cases.

The bone marrow configurations with $^{99m}$Tc-sulfur colloid were distinct in the pelvis, lumbar and thoracic vertebrae, and relatively distinct in the skull and proximal ends of both humeri and femora in the normal adults. Distinct pelvis figures which was usually observed in the young adults, appeared in only one case of the aged, and did not appear in the others. Distinct or relatively distinct bone marrow figure was observed in 3 cases. But 4 cases showed no figures. The bone marrow of skull was figured in the aged as clearly as in the young adults. Three cases showed obscure figures in the femora and humeri. But the other cases did not show any figures in these bones. There was considerable individual variations on the extent of marrow distribution of $^{99m}$Tc-sulfur colloid. But it could be said, generally the marrow distribution of $^{99m}$Tc-sulfur colloid was reduced in all bones including pelvis, vertebrae and skull.

Hemopoietic functions was lightly suppressed and functionally phagocytic marrow distribution was correspondingly reduced in the aged, although the discrepancy of the distribution of erythropoietic marrow and functionally phagocytic marrow in various hematological disorders were already reported by D. van Dyke et al. in 1967.

Evaluation of the Bone Marrow and Spleen Scintiscanning in Their Application to Follow-up-study of Hematological Diseases

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The bone marrow and spleen scintiscanning was applied to following up the disease stage and to determining the effect of treatment and their evaluation was done in reference to the results of routine ferrokinetics, life span study of erythrocytes and spleen function study as well as to the clinical and hematological pictures.