

jected tracers.

Accurate determination of initial circulation characteristics enabled us also to analyse in rapid phase the splenic pooling and extrac- into function of abnormal erythrocytes or colloid particles. To simulate this extraction process the first order accumulating filters were connected to each filters for splenic paths. N.E.M.-treated cells were disclosed to be just slightly impeded to flow out with much lower extraction rate than heat-treated cells whose

outflow delayed remarkably. Rate constant ratio of extraction versus outflow was observed to increase as mean particle size of administered radiocolloids increased.

In spite of some intricated process, this analysis method is considered to be necessary to analyse the spleen hemodynamics in which much slower component exists with closer relationship to its function than those seen in other organs.

### Studies on Lymphoscintigraphy with $^{198}\text{Au}$ Colloid

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To clarify the factors affecting the pattern of the lymphoscintigraphy, transfer and distribution ratio of  $^{198}\text{Au}$  colloid administered subcutaneously into rabbits were studied under various conditions. Fifty to 200  $\mu\text{Ci}$  of the colloid whose diameter was about 50 A in 0.2ml physiological saline were injected in the foot unless otherwise stated. A linear scanning was performed on foot injected, lymphnodes (popliteal and pelvic) as well as liver at definite intervals with a scintiscanner under the conditions as follows: slit width 1 cm, the detector to the bed distance 30 cm, bed speed 16 cm per minute. Twenty four hours after the injection, when radioactivity on the foot became almost stationary, the transfer ratio was calculated in terms of ratio of the reduced against the injected radioactivity. The distribution ratio was obtained as the ratio of each local radioactivity against the sum of the

localities tested. 1) Under the condition the transfer ratio was 26.2%. The distribution ratio was 71.9% on the popliteal, 13.2% on the pelvic lymphnodes and 14.9% on the liver respectively. 2) When  $^{198}\text{Au}$  colloid whose diameter was 300 A instead of 50 A was used, the transfer ratio was raised but the distribution ratio was almost the same. 3) The transfer ratio and the distribution ratio of the liver were markedly increased by passive movement of the lower extremity injected. 4) Injection of typhoid vaccine or predonisolone hardly affected the transfer ratio or the pattern of distribution of the colloid. 5) Being tested on the third day after irradiation of 400 rad of betatron on the popliteal lymphnodes, the transfer ratio and the distribution ratio of the popliteal lymphnodes proved to be increased compared with the non irradiated.