



**FIG. 1.** Buildup and clearance of tracers in lymph of rats after intravenous administration.

Sprague-Dawley rats (250–300 g) were anesthetized with ether. The abdominal cavity was opened by a midline incision, the mesenteric lymphatic duct was cannulated with a heparinized polyethylene catheter (PE-50, i.d. = 0.58 mm, o.d. = 0.96 mm). The rat was returned to a specially designed cage. To maintain a constant fluid level, intragastric infusion of sterile isotonic saline was made through a silastic tube (1.25 ml/hr) with an infusion pump. After 30 min of lymph flow, when the lymph was free of blood, 200–300  $\mu$ Ci of various tracers were administered by tail vein. Lymph was collected in preweighed plastic tubes. The radioactivity of different radionuclides was determined with a gamma counter.

Three rats were injected with each type of radiotracer and lymph was collected for 210 min. The average radioactivity per unit weight of lymph was determined. The time courses of tracer appearance and clearance are shown in Fig. 1. Sodium bromide (Br-82), the extracellular reference marker, maintains a constant level of radioactivity. Tracers with small molecular weight (pertechnetate, Tc-99m DTPA, Tc-99m pyrophosphate, and Tc-99m MDP) reach peak concentration at 10–15 min after administration. Gallium-67 (as citrate) reaches a peak value at 30 min. Iodine-125 HSA reaches peak at 60 min and maintains that level until the end of the study period.

Lymph from all regions of the body finally enters the blood stream at the root of the neck through the main lymph ducts. The normal rate of lymph flow from different tissues, as well as the capacity of the regional lymphatics to remove the excess of extravascular fluid, varies considerably; this again changes drastically with different diseases. The rat model provides us with a simple method of investigating this important parameter of peak time and lymph clearance of radiopharmaceuticals, which warrants further study.

MRINAL K. DEWANJEE  
Mayo Clinic  
Rochester, Minnesota

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#### BOOKS RECEIVED

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*Radionuclide Imaging in Drug Research*. C.G. Wilson, J.G. Hardy, M. Frier, S.S. Davis, Eds. London and Canberra, Croom Helm, Ltd., 1982, 330 pp, \$44.00 (Available in the US from Biblio Distribution Center, P.O. Box 327, 81 Adams Dr., Totowa, NJ 07512)

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