Intravascular survival of leukemic cells labeled with Indium-111-Oxine

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A method for labeling leukemic cells in vitro with $^{111}$In-oxine is described. Intravascular survival data and organ distribution of $^{111}$In-oxine-labeled leukemic cells in patients with acute leukemia are presented. No evidence of diminished cell viability or significant elution of the label could be found by the in vitro studies. Disappearance curves of $^{111}$In-labeled leukemic cell radioactivity in the circulation were a single exponential with average T1/2 value of 15.3 ± 2.5 hr (mean ± SEM), which was found to be prolonged when compared with the results of 4 hematologically normal subjects (7.0 ± 0.8) and those of previously reported $^{32}$P studies. Migratory patterns of the labeled leukemic cells, obtained by a scintillation camera, demonstrated sequestration in the lungs 5 min after the infusion, and thereafter, the uptake into the spleen and liver gradually increased. We believe that the properties of $^{111}$In-oxine might overcome many of the difficulties of studying leukemic cell kinetics with cells labeled with tritiated thymidine.

Key words: Leukokinetiics, Leukemia, In-111-oxine