The Medical Research Center

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BROOKHAVEN NATIONAL LABORATORY

MEMORANDUM

DATE: March 19, 1954

TO: BNL Committee on Use of Radioactive Isotopes in Humans

FROM: Laurence S. Maynard, M. D.
L. S. Maynard

SUBJECT: Proj. H-35: Use of Manganese^{56} as a therapeutic agent

REPOSITORY Records Holding Area Bldg 494

COLLECTION Protocols - Clinical

BOX No. 4

FOLDER Human Protocols - 1950-1963

It is proposed that Mn^{56} be used as a therapeutic agent in humans. A patient is available with an islet cell tumor of the pancreas that has metastasized to the liver. Data from studies on rats done by myself indicate that approximately 30% of the i-v administered Mn^{56} is concentrated in the liver, and 3.9% in the pancreas. The isotope is removed very rapidly from the circulating blood, and concentration in the skeleton is 5%.

It is estimated that in order to deliver a dose of approximately 1200 rep to the pancreas and 600 rep to the liver, 300 millicuries of Mn^{56} must be administered. This dose may be repeated if the clinical course of the patient so indicates.

The route of excretion of manganese is over 90% in the feces, but the short half-life of the isotope (2.59 hrs.) and the dilution of the material in the intestinal tract should obviate the hazard of radiation damage to the gut. Total body dose is estimated at 60 rep. Due to low concentration in the blood and skeletal system, damage to the hemopoietic system should be minimal. Chemical dose of $MnSO_4$ will be under 300 mgm., so chemical toxicity presents no problem.

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