

BROOKHAVEN NATIONAL LABORATORY

MEMORANDUM

DATE: April 8, 1953

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 COLLECTION Protocols-Clinical *Blodg. 494*
 BOX No. 4
 FOLDER HUMAN PROTOCOLS 1950-1943

TO: BNL Committee for the Use of Isotopes
 in Humans
 FROM: C. G. Lewallen, M.D.
 SUBJECT: Project H-30 - I-131 Human Serum
 Albumin as a tracer in hospitalized
 patients.

This constitutes a request for authorization to use normal human serum albumin iodinated with I-131 as a tracer in hospitalized patients.

A program has been initiated to determine the rates of equilibration of intravenously injected I-131 tagged albumin in euthyroid humans and to study the effects of thyroid and adrenal cortical hormone on these rates. The patients to be used for this study will be those with carcinoma of the thyroid gland with distant metastases or patients with severe coronary sclerosis and angina pectoris. Such patients may reasonably be considered to have limited life expectancy, and manipulation of their thyroid and adrenal status may reasonably be considered to have therapeutic implications.

During the course of the study the patients with coronary disease will be subjected to "thyroid ablating" therapeutic dose of approximately 75 mc of I¹³¹. The patients with thyroid carcinoma will be given periodic therapeutic doses of I¹³¹ of clinically indicated magnitude and frequency.

The I-131 human serum albumin used will be the Abbott Laboratories preparation. Blood samples will be taken for time-concentration curves up to 14 days following intravenous injection. When indicated, thyroid uptake of unbound I¹³¹ or I¹³¹ liberated by albumin metabolism will be prevented by administration of stable iodides or anti thyroid drugs.

We calculate the combined beta and gamma whole body radiation dosages, assuming no excretion, to be .284 rep/uc/Kg body weight. However, the effective half life of this material, calculated from the biological half life of approximately 11 days as determined by Sterling and the physical half life of 8 days, is approximately 4.63 days. The combined beta and gamma dosage corrected for this effective half life of 4.63 days is .164 rep/uc/Kg. Accordingly, 0.3 rep would be delivered by 1.83 uc/Kg body weight.

We request permission to use I-131 human serum albumin in the types of patients specified above in dosages up to 5.49 uc/Kg as frequently as once a month for a period of 10 months.

Approved:

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