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MEMORANDUM

DATE: October 16, 1956

REPOSITORY Records Holding Area Bldg 494 TO: Committee for the Use of Isotopes
in Humans

COLLECTION Protocols - Clinical FROM: C. M. Neil, M.D.

BOX No. 4 SUBJECT: Hospital Project H-42
The Use of I-132 as a Tracer in
Certain Hospitalized Patients

FOLDER Human Protocols 1950-1963

It is requested that permission be granted to give tracer amounts of I^{132} to hospitalized patients selected for thyroid function studies.

I^{132} offers promise of development of a quick test of thyroid function. Because of its short half-life ($t/2 = 140$ min.), total radiation dosage to the patient will be reduced to about $1/24$ of that following I^{131} administration. The short half-life will permit repetitive testing as often as consecutive days if it is desired. Studies will be directed to developing a test of thyroid function based on distribution kinetics of I^{132} within 6 hours of administration. Patients with and without thyroid function disturbances, and with carcinoma of the thyroid, will be used in these studies. Assuming the development of a satisfactory test of thyroid function, it is then proposed to utilize such a test in studies of thyroid patients; specifically, changes in tracer thyroid radioactive iodine (I^{132}) uptake within three months of therapeutic I^{131} administration.

The specific proposal for this project (H-42) is to give from 50-200 μ c I^{132} , orally or intravenously, to selected patients noted above. This procedure will be done on two consecutive days to provide an estimate of the thyroid uptake, the body distribution, and renal excretion. Duplicates are expected to provide an estimate of the experimental error or variability in the procedure.

The same patient will then receive a BNL standard I^{131} tracer test of 15 μ c by mouth. The mean I^{132} uptake may then be correlated with the I^{131} value, and with such other estimates of thyroid function as EMR and serum protein iodine (PBI), as well as the clinical condition of the patient. This information should, therefore, allow an evaluation of the reliability and variability of I^{132} as a test of thyroid function.

Further, pilot studies of the problems involved in counting I^{132} in the presence of tracer and therapeutic levels of I^{131} will be done, provided the first objective has been satisfactorily reached.

Respectfully submitted

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