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DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
WASHINGTON, D.C. 20315

IN REPLY REFER TO:
MEDPS-PO

16 January 1970

Isotopes Branch
Division of Materials Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Gentlemen:

Your attention is invited to the attached correspondence. Recommend that Fitzsimons General Hospital's AEC License Number 05-00046-13 be amended to include the procedures and dose schedules shown in this correspondence.

If the procedures and dose schedules are not acceptable to your radioisotope committee, request you furnish information upon which to base a reply to Doctor Morita.

The supporting documents with the request to renew this application for an AEC license, dated 25 June 1968, are all still in effect. There has been some minor personnel changes in this facility's radioisotope committee, however, the replacements have all been certified and are qualified to assume positions on this committee.

We appreciate the consideration and service rendered in respect to the many changes required for the Army Medical Department to properly manage the radioisotope clinics in the Army medical facilities.

Sincerely,

James E. Anderson

JAMES E. ANDERSON
LTC MSC
Preventive Medicine Division

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DEPARTMENT OF THE ARMY
FITZSIMONS GENERAL HOSPITAL
DENVER, COLORADO 80240

MEDLO-Y

30 December 1969

LTC James E. Anderson, MSC
Preventative Medicine Division
Department of the Army
Office of the Surgeon General
Washington, D. C. 20315

Re: MED-PS-PO

Dear Col. Anderson:

This letter is in reference to the use of radioiodine in athyrotic patients who have had thyroid carcinoma in the past. For the past several years this clinic has been using 1 - 2 mc. doses for diagnostic purposes in attempting to determine functioning metastases in these athyrotic patients with thyroid carcinoma. Many clinicians (Saenger, Pochin, and Hales) have used diagnostic doses up to 5 mc. of radioactive iodine I-131 in athyrotic patients who have had thyroid carcinoma. The uptake in patients who have been rendered athyrotic by surgery or radioiodine is extremely low and approaches 0%. However, with appropriate scanning methods, areas of functioning metastasis have been found. Saenger in Radiology, Vol. 83, Pages 892 through 901, found that with radioactive uptake of 1% the whole body radiation in Rads with a 1 mc. tracer dose was 0.14 Rads. Pochin in Clinical Radiology, Vol. 18, 1967, Pages 113 through 125, found that after administering 150 mc. as a treatment dose for thyroid carcinoma, a patient with an uptake dose of 0.4% and 1.6 grams of functioning thyroid tumor, that the dose delivered to the tumor was 12,000 Rads, or with a whole body dose was considerably smaller being 32 Rads. At very low uptake values primarily the radiation is due to the free iodine and a smaller portion due to the radioiodine which has been handled by the functioning thyroid carcinoma to produce protein bound iodine. In this patient with 0.4% uptake the inorganic iodine dose was 40 Rads, with the organic, that is the protein bound iodine fraction, was only 2 Rads. This would mean that an individual with an uptake of 0.4%, given a diagnostic dose of 1.5 mc. that is Rad dose of the blood, would be a total of 0.42 Rads. Of course with larger percents of uptake by functioning thyroid carcinoma, greater dose would be given to the body because of the I-131 being attached to the protein moiety. In the patients that we have studied in our clinic, the uptakes have been considered generally quite low, usually less than 1%. Hales, in the Medical Journal of Australia, Vol. 1, 1969, pages 372 through 378, has used up to 5 mc. of radioactive iodine I-131 in order to determine functioning metastases. Because of the improved

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MEDEO-X
SUBJECT: Continuation of letter regarding use of radioiodine in athyrotic patien

statistics involved and the relative safety according to the references listed, we would like to continue using radioactive iodine I-131 in the range of 1 to 2 mc. for diagnostic study in athyrotic patients who had thyroid carcinoma. Although from your last letter the limits are not precisely set, I would like this matter clarified. It would appear from the guidelines that you have given me from the AEC, under treatment of thyroid carcinoma, up to 100 mc. may be given as a treatment dose. No specific limits are set for the diagnostic dose one may use for the diagnosis of thyroid carcinoma in patients who have been previously rendered athyrotic either by surgery or radioiodine.

Additionally, I should also like to make inquiries as to the amount of radioiodine we may use for the treatment of hyperthyroidism. We would like to administer up to 120 uc. per gram of thyroid tissue of radioiodine I-131 delivered to the gland. This dosage would be calculated on the basis of the patient's uptake. The patient's in whom total ablation of the thyroid gland is being considered, e.g., patients with progressive exophthalmos, and cardiac patients, we would like to deliver 250 uc. of radioactive iodine I-131 to the thyroid gland.

Thanking you for the assistance that you have been to us in the past, and hope that you will be able to advise us accordingly as to the questions I have listed above,

Very truly yours,

Eugene T. Morita

Eugene T. Morita, Maj. MC
Chief, Nuclear Med. Svc.

ETM:mlg

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