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SUMMARY FACTSHEET HUMAN EXPERIMENTATION - SFS10.001

Project Category: Biological Effects of Iodine-131

Funding Source(s): AEC/ERDA

Institution(s): 1) Case Western Reserve Univ. (AEC/ERDA)
2) Univ. of Puerto Rico (AEC)
3) Sloan-Kettering Institute for Cancer Research (AEC)

Principal Investigator(s): 1) B. M. Dobyns
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Objective(s) of Project: To determine the physiological and morphological effects of iodine-131 radiation on the thyroid of humans

Short Description and Follow-up Data:

1) During a 25 year period, 7/1/51 to 9/30/76, over 500 patients with hyperthyroidism were studied in great detail. During the first few days after treatment the observations essentially reflected unaltered function of the thyroid, but with the passage of time, the observations reflected the effects of radiation. The changing patterns of iodinated compounds in the blood, alterations in rate of return of the radioactivity to the thyroid, and the subsequent testing of the functional capacity of the gland permit an analysis of the effects of radiation.

2) During the period 1952 to 1958, radioiodine was used for therapy of hyperthyroidism and metastatic thyroid cancer. Therapeutic doses gave 2,000 to 100,000 rad to the thyroid. Whole body doses up to 20 rad. One patient with pulmonary metastases given 18 mCi I-131 received 40 to 80 rad whole body. This patient was doing well six years later.

3) In the 1948-1956 period, 22 patients were treated with therapeutic doses of I-131 to destroy thyroid tissue. Doses ranged from 95 to 329 mCi. In 1960, of 55 patients, 26 were known to be dead. Others being followed.

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