

Results of the Treatment of Hyperthyroidism with Radioiodine

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From 1953 to 1966, more than 11500 patients with hyperthyroidism were treated with ^{131}I at 80 hospitals in Japan, and 7494 individual records of the treated patients were collected from 56 hospitals. According to these reports, results of the treatment were summarized as follows: cured or markedly improved in 72.5%, hypothyroid in 3.6% of them and in the remainder not improved or unknown about the results. Of these 7494 persons inquiry was made by mail about the present state of their health, complicated diseases, cause of death, if patient was already dead, and their children born after treatment with ^{131}I . Reply on these inquiries was returned from 4494 of them. If the reply of the inquiry were taken into consideration, the rate of incidence of hypothyroidism should be about 1% more than the percentage above

described. The incidence of hypothyroidism was a little more frequent in patients younger than 50 years in comparison to those older than 50 years, and more frequent in the patients treated before 1963 than those after 1963. But no correlation was evidently demonstrated between the incidence of hypothyroidism and the dose of ^{131}I in mCi, 40 patients with various malignant neoplasms found after the treatment were reported, and 28 of them were diagnosed as such more than 2 years following the treatment, including 2 thyroid, 8 breast, 5 stomach, 4 uterine, 2 liver, 2 lung cancers, and others. Acute myeloid leukemia was occurred in 2 patients within 2 years after the treatment.

Further survey and analysis are now carrying on.

Measurement of Serum Insulin by ^{125}I Insulin

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After incubation of 0.1 ml reconstituted binding reagent with 0.1 ml of standard insulin or plasma samples at 4°C for 12 hours, 0.1 ml insulin- ^{125}I was added to the mixture and incubated at 4°C for 24 hours. The precipitates yielded during incubation were collected by micro-filtration through "oxoid" cellulose acetate membrane; each solution sucked up from the tubes using a micro-teat-pipette was filtered through the membrane under 180~200 mmHg vacuum suction.

Then the tube and pipette were washed out twice with 0.5 ml phosphate buffer (pH 7.4) containing bovine albumin. Filtration procedure was repeated with the washings and then the treated filter dish was wrapped in a 5 cm square of aluminium foil which was made into a pellet. Radioactivity of precipitates on the

filter dish was counted using well-type scintillation counter. Standard insulin curve was obtained satisfactorily with this technique. The reproducibility of duplicate determinations was also confirmed. Repeated freezing and thawing of the insulin binding reagent had no significant influence on the results of assay.

But it was confirmed that value of IRI tends to become low when freezing or thawing of plasma is repeated. Some experiments were carried out to find causes of major errors in the assay.

As the results it was recommended that (1); filtration procedure should be done carefully under constant vacuum suction power since it is the important step to get quantitative collection of precipitated insulin. (drop-