

estimated thyroid weight. With elapse of years after treatment, T_3 , T_4 and T_3/T_4 ratio remained within normal limits and there was no rise in

T_3 concentration, and therefore no T_3 euthyroidism.

Follow-up of ^{131}I Therapy of Hyperthyroidism

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The clinical results of 858 patients (139 men and 719 women) with hyperthyroidism, to which ^{131}I therapy had been conducted, were reported with reference to hypothyroidism after ^{131}I therapy as follows:

- 1) ^{131}I thyroid uptake which is a factor of calculating the ^{131}I dose was 64.5% on an average, the mean effective half life 5.9 days and the mean thyroid weight 44g.
- 2) The dose ranging from 7,000 to 8,000 rads was aimed as the absorbed dose in the first half, and the dose ranging from 4,000 to 5,000 rads as the latter half. The initial ^{131}I doses were 5–6 mCi in the first half and about 4 mCi in the latter half. ^{131}I were given as once per several months in the first half and once per 6–12 months in the latter half. The numbers of ^{131}I delivery were about 2 on an average in the first half and 1.2–1.4 in the latter half. The total dose was 7–10 mCi in the first half, and recently it was almost about 5 mCi.
- 3) ^{131}I thyroid uptake on therapy was 72% on an average, compared with 65% on pretherapy examination. The effective half life was 5.9 days. The rate of virtual absorbed dose to expected dose was 1.1. In comparison with those

two doses in 531 patients, the rate of the only 60% of them ranged from 0.8 to 1.2.

- 4) Results of ^{131}I therapy were decided within the patients which had practically been followed up. Five hundred and fifty-three (64%) of 858 patients could be followed up. Of them, 475 (86%) including 3 patients who had completely healed after recurrence were healed. Sixty-three patients were under medical treatment, and eight died.
- 5) The incidences of hypothyroidism were 1.3% after 1 year, 2.7% after 3 years, 4.1% after 5 years, 13.8% after 10–12 years, 21.5% after 13–14 years and 26.5% after 16–20 years. The incidence of hypothyroidism was gradually increased with the lapse of year.
- 6) When the normal value of ^{131}I - T_3 resin uptake (Triosorb method) ranged from 23 to 35%, the result of gradual increase of low ^{131}I - T_3 resin uptake was almost in accordance with the incidence of the above-mentioned hypothyroidism. When the normal value of TSH ranged from 2 to 8 $\mu\text{U/ml}$, a high rate of hypothyroidism was indicated as patients of whose values were above 8 $\mu\text{U/ml}$ were 21% after 1–3 years, 51% after 4–9 years, 68% after 10–14 years

and 85% after 15–20 years. Fifty percent of patients indicated T_3 value under 0.8 ng/ml and 39% indicated T_4 value under 4 $\mu\text{g}/\text{dl}$ after 15–20 years. The incidences of abnormally low T_3 and T_4 values were between incidence of hypothyroidism diagnosed by clinical symptoms and that of abnormally high value of TSH.

7) Thyroid crisis immediately after ^{131}I therapy,

transient exacerbations of hyperthyroidism and hypoparathyroidism were not observed, and in addition leukemia or thyroid cancer as late complications were not observed in any patients. Difference in sex was not seen in the 126 children of whom mothers had conceived them in more than one year after ^{131}I therapy. Any of these children except the one child with atrial septal defect were healthy.

Thyroidal Function and Seasonal Change of ^{131}I - T_3 Resin Sponge Uptake

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To investigate the seasonal change of thyroidal function, ^{131}I -triiodothyronine resin sponge uptake (Triosorb, RSU) of serum of healthy male and female adults was measured in summer and winter. RSU was significantly higher in summer than in winter, regarding the mean value in groups in both seasons and the difference of both values between in summer and winter of each individuals as well.

In a series of male volunteers, the measurement of RSU was monthly performed simultaneously with those of PBI, total cholesterol and total protein contents in blood serum. RSU was higher in summer (from June to August) than in winter (from December to February). PBI was lower in

summer than in winter, but statistically not significant. Total cholesterol and total protein were significantly lower in summer.

In the other series of male adults, RSU and effective thyroxine ratio (Resomat-ETR) were concurrently measured and both were significantly higher in summer than in winter, while diphasic with peak values in July and November.

As the results of the above mentioned data, it should be concluded that the amount of thyroid hormone in circulating blood be higher in summer than in winter, while the higher value of RSU in summer may be partly due to lower blood concentration in summer.

Radioimmunoassay of Calcitonin in Various Thyroid Disease

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Plasma calcitonin levels were measured by a radioimmunoassay before and after an infusion of

calcium in 12 patients with simple goiter, 13 with Graves' disease, 19 with chronic thyroiditis, 1