

and an alternative appropriate normal ranges had to be defined. Thus, the range of 0.87–1.10 was arbitrarily selected by inspections as the best euthyroid ETR range. By using this euthyroid range, the ETR values gave 97.1% accuracy in diagnosing hypothyroid, euthyroid and hyperthyroid subjects. Similarly, the euthyroid T_4 range giving maximum discrimination between hypothyroid, euthyroid and hyperthyroid subjects was 4–13 $\mu\text{g/l}$

100 mL . The diagnostic accuracy was 91.6% in this range, because of including the patients with abnormal TBG capacities in euthyroid group. The results indicated that ETR values were the useful indicator of thyroid function and that it was possible to find out the patients with abnormal TBG capacities, by means of determining T_4 simultaneously.

Serum Reverse-Triiodothyronine (r- T_3) Level in the Aged

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Serum level of triiodothyronine was reported to be decreased in some aged people. In order to elucidate the metabolism of thyroidal hormones, serum r- T_3 , T_3 , T_4 and TSH levels were measured in both adult and aged people.

Materials and Methods: Serum r- T_3 , T_3 , T_4 and TSH were measured in 16 aged extrathyroidal patients, from 66y.o. to 91 y.o. (Group-II) and 9 normal subjects, from 27 y.o. to 48 y.o. (Group-I). The r- T_3 was measured with RIA-kit of HY PO.-laboratory. TSH and T_3 were determined by RIA-method and T_4 by CPBA-method.

Results: Serum T_4 and T_3 levels in Group-II (T_4 : 72 ± 41 ng/mL), T_3 : 0.70 ± 0.29 ng/mL) showed lower values than those in Group-I (T_4 : 87 ± 11 ng/mL , T_3 : 1.41 ± 0.15 ng/mL). On the other hand, serum r- T_3 levels in Group-II (0.58 ± 0.28 ng/mL) were significantly higher than those in Group-I (0.355 ± 0.33 ng/mL). The r- T_3 / T_3 ratio in Group-I (0.24 ± 0.04) remained to be constant, while the r- T_3 / T_3 ratio in Group-II (1.12 ± 0.89) showed

higher value on the average with large variation from case to case. In all patients of Group-I with serum r- T_3 level more than 0.5 ng/mL , the serum T_3 level remained less than 1.0 ng/mL . Ratio of r- T_3 / T_4 in Group-I (0.00417 ± 0.00068) were lower than those in Group-II (0.0098 ± 0.004), and T_3 / T_4 ratio in Group-I (0.0172 ± 0.077) were higher than those in Group-II (0.0082 ± 0.0058).

Conclusion and comments: Serum T_3 and T_4 levels in the aged patients showed lower values than those in normal adults. On the other hand, serum r- T_3 level in the aged patients was remarkable higher than that in the normal adults. These facts might suggest that the metabolic degradation of T_4 into r- T_3 could be more dominant in the elderly people than control, while, in control, T_4 could be predominantly metabolized into T_3 . The effect of chronic illness in elderly patients upon thyroxine metabolism should be further evaluated.

Determination of Tissue T_3 and T_4 Concentrations

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Recently it has been demonstrated that conversion of T_4 to T_3 in the peripheral tissue plays an essential role in the biological effectiveness of

thyroid hormone. It is, therefore, important to determine the tissue T_3 and T_4 concentrations for the study on the metabolism and the effects of