

Scintigram and CT image in Thyroid test

M. SEKIMOTO, K. TORATANI, K. KANNA, A. YONEMITSU, Y. MAJIMA,

H. NISHIGAMI, Y. KANASAKI and H. AKAGI

Department of Radiology, Osaka Medical School, Takatsuki

In this report more diagnostic information of thyroid disease were obtained by a combination of the scintigram, using I-131 and Tl-201, and CT image.

The CT images were obtained by EMI scanner 5005/12 and the scintigrams were by Nunclear Chicago Pho/gamma Hp.

Tl-201 was concentrated in the scintigram to the tumor in thyroid cancer, some benign tumor and chronic thyroiditis with the nodule.

The thyroid image of CT scan in chronic thyroiditis was less appeared than in normal thyroid.

The thyroid images of CT scan were not clear in hyperthyroidism, subacute thyroiditis and Plummer's disease.

In normal thyroid EMI numbers were 29.41-62.01 and those of hyperthyroidism were lower than those of normal thyroid.

EMI numbers in struma cystica were lower than struma nodosa.

Using scintigram by I-131 and Tl-201, and CT image in thyroid function test were valuable in diagnosis.

Abnormalities in Thyroid Hormone Concentration by Radioimmunoassay due to Anti-Thyroxine and Anti-Triiodothyronine Autoantibodies

J. KONISHI*, K. IKEKUBO*, K. ENDO*, K. NAKAJIMA*, T. OKUNO*, K. KASAGI*,

K. TORIZUKA*, S. YAKURA**, T. MORI*** and I. NAGATA****

**Department of Radiology and Nuclear Medicine, Kyoto University school of Medicine, Kyoto.*

Department of Medicine, Kyoto University School of Medicine, Kyoto, ***Kobe Central Municipal Hospital, Kobe, *Kansai Denryoku Hospital, Osaka*

Antibodies against thyroxine (T₄) and/or triiodothyronine (T₃) were detected in five patients with Hashimoto's disease, including one with anti-T₄ antibody (Case 1), three with anti-T₃ antibody (Cases 3-5) and one with both antibodies (Case 2). Serum T₄ values by a single antibody radioimmunoassay (RIA) were significantly lower than those by competitive protein binding assay in Cases 1 and 2.

In cases with anti-T₄ antibody, serum T₃ values by a single antibody RIA were low or zero. Upon extraction of these sera with ethanol, high or normal amount of T₃ were obtained.

Recovery of T₄ or T₃ added to the patients' sera determined by RIA was significantly low. The binding of ¹²⁵I-T₄ or ¹²⁵I-T₃ to the patients' sera was demonstrated by polyethylene glycol method and by using RIA kits without adding provided antibody. The binding activity was local-

ized in the IgG fraction by column chromatography and immunoprecipitation. T₄ or T₃-binding protein in Cases 1, 2 and 5 migrated in the gammaglobulin region on paperelectrophoresis and was found in 7S fraction on Sephadex G-200 chromatography. The association constant (K_a) and binding capacity of anti-T₄ antibody in Cases 1 and 2 were $1.9 \times 10^8 \text{ M}^{-1}$, $0.8 \mu\text{g}/100\text{ml}$ and $3.8 \times 10^8 \text{ M}^{-1}$, $8.2 \mu\text{g}/100\text{ml}$, respectively. K_a for anti-T₃ antibody in Cases 2, 3 and 5 were 1.7×10^8 , 5.5×10^8 and $7.4 \times 10^{10} \text{ M}^{-1}$ and binding capacities were 1.9, 0.6 and $0.7 \mu\text{g}/100\text{ml}$ respectively.

Misleading low RIA values in these cases were considered to be caused by the increase of the binding capacity in RIA system due to these antibodies.

Presence of these hormone binding antibodies should be kept in mind to avoid erroneous clinical