

### Radioiodine-123 for Thyroid Test

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I-123, I-131 and Tc-99m were compared for thyroid test in this report, using gamma-camera and a minicomputer system, and the resolution and energy spectrum of I-123 and I-131 were studied. (Energy spectrum was obtained from gamma-camera.)

And thyroid scans and iodine thyroid uptake ratio with I-123 and I-131 were studied.

#### Result:

Resolution of I-123 was better than I-131, and the images obtained from I-123 were better than the images from I-131 and Tc-99m.

I-123 thyroid uptake ratio was highly correlated with I-131 uptake ratio.

I-123 has a half life of 13 hours and the absorbed radiation dose is low, compared to I-131.

I-123 for thyroid test is more useful than other nuclides.

### Clinical Evaluation of Thyroid Scintigraphy with $^{123}\text{I}$

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We have studied to clinical evaluation of  $^{123}\text{I}$  which has been radionuclide with a short half life.

A total of 81 patients with thyroid diseases and without them had the following diagnosis: thyroid carcinoma in 8, hyperthyroidism in 19, hypothyroidism in 1, subacute thyroiditis in 2, chronic thyroiditis in 10, adenomatous goiter in 2, nodular goiter in 19 and others in 20.

$^{123}\text{I}$  was administered orally. The dose was usually 100–500 microcuries, although in case of metastatic thyroid carcinoma whole body images were obtained after 1–3 millicuries. Images obtained with the Picker Magna Scanner, Hitachi Whole

Body Scanner and Picker Dyna Camera. In some cases, images compared with  $^{99\text{m}}\text{Tc}$ -pertechnetate and  $^{123}\text{I}$ .

There were 88 examinations performed on 81 patients. 1 hour after the administration of  $^{123}\text{I}$  back ground radioactivity was high. 3–6 hours after administration of approximately 500 microcuries of  $^{123}\text{I}$ , excellent thyroid images were obtained. But approximately 100 microcuries of  $^{123}\text{I}$ , sintigram were performed similar to those obtained with  $^{123}\text{I}$ . A comparison of  $^{123}\text{I}$  with  $^{99\text{m}}\text{Tc}$ -pertechnetate, superior images obtained with  $^{123}\text{I}$ .