

cups and after the other overnight incubation, the cups was again washed and counted. The least detectable serum TG concentrations by this method was 4 ng/ml.

Serum TG concentrations in 11 patients with various thyroid disorders were measured. Low or undetectable TG concentrations were observed

in 4 cases with chronic thyroiditis.

In one case each of Graves' disease and sub-acute thyroiditis had high values of 480 and 280 ng/ml, respectively. Other cases with treated Graves' disease, simple goitre and follicular adenoma had various values ranging from undetectable to 160 ng/ml.

Scintigrams of Low- ^{131}I -Uptake Thyroid Using $^{99\text{m}}\text{Tc}$ -Pertechnetate

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$^{99\text{m}}\text{Tc}$ -pertechnetate as a scanning agent for the thyroid has more advantages than ^{131}I in the quality of scintiphotogram as well as in the

radiation dose received.

The advantages were proved especially in the patient whose ^{131}I uptake was less than 15%.

The Dynamic Thyroid Study

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In 1971, Ashkar and Smith developed a single-visit evaluation method of thyroid function using $\text{Tc-}^{99\text{m}}$ pertechnetate and the Anger gamma camera. As the index of function, they measured the carotid-thyroid transit time (CTTT). It correlated well with other thyroid function tests. A similar and more quantitative test of thyroid function has been attempted by us.

An Anger gamma camera with 4,000 hole collimator is used. The patient is in a prone position facing the detector, with the neck extended. $\text{Tc-}^{99\text{m}}$ pertechnetate (0.2 mCi/Kg body weight) is injected into the antecubital vein as a bolus. While a 35 mm camera takes serial images every 1.5 seconds, continuous recording is made on the magnetic tape for five minutes. When replaying to obtain the accumulation curve, the region of interest is selected so as to

include the whole thyroid gland. We measure "O", which is angle of the slope of the curve at one minute after the injection.

The O correlated well with 24-hour I-^{131} uptake in hyperthyroidism. However, it was difficult to differentiate euthyroid condition from hypothyroid condition because in either condition the O was too small to be accurately measured.

The advantages of our dynamic thyroid study:

1. Single visit study is enough.
2. Radiation dose to patient is lower.
3. No pre-conditionings of patient are required such as eliminating foods that contain high levels of iodine from the diet.
4. Our method enables us to assess thyroid function in hyperthyroidism more quantitatively than CTTT.