

Iodine-123 Thyroid Uptake and Scintigraphy

M. MORIKAWA, and M. SUZUKI

Radioisotope Laboratory, Amagasaki Prefectural Hospital, Amagasaki

S. IJIMA, M. SUWO and M. MIYAMOTO

Department of Internal Medicine, Amagasaki Prefectural Hospital, Amagasaki

We evaluated the clinical usefulness of I-123, which has been purely prepared by Japan Med-Physics Lab..

Uptake and scintigraphies with I-123 were carried out on 45 patients with thyroid disease. Scintiphotos with I-123 were compared with those obtained by I-131 and Tc-99m pertechnetate. Comparison of thyroid uptakes was made between I-123 and I-131. Studies consisted of 3-day procedure; dose of I-123 administered on the first day; uptake and two scintigraphies with I-123, followed by a dose of I-131 on the second day; and uptake and scintigraphy with I-131 on the third day. Iodine uptake values were measured 3, 6, and 24 hours after administration. The standard dose of I-123 and I-131 used in this study were 100 microcuries. In 27 cases, scintiphotos were taken 30 minutes after intravenous injection of Tc-99m

pertechnetate. Thyroid images were obtained using a gamma camera with a pinhole collimator.

The uptake values for both I-123 and I-131 in 45 patients agreed within the limites of diagnostic values. The two values showed a fair correlation ($r=0.970$) and a linear regression was $y=1.0x+1.1$ ($p<0.001$). The clearest thyroid images with I-123 who obtained at 6 hours after the administration.

In some cases the quality of cold nodule images with I-123 were superior to those with I-131. In two cases of adenocarcinoma clear cold nodule was showed by I-123, whereas thyroid was not delimated by Tc-99m pertechnetate.

These results suggested that I-123 is useful in both measurement of thyroid uptakes and scintigraphies. In addition, I-123 is a desirable agent since it has no beta emission and a short half life.