

H. Endocrine (Except thyroid) Metabolism

CLINICAL STUDY OF 6-METHYL-⁷⁵SE-SELENOMETHYL-19-NORCHOLEST-5(10)-EN-3β-OL (SCINTADREN [®])

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A new agent for adrenal scintigraphy, 6-methyl-⁷⁵Se-selenomethyl-19-norcholest-5(10)-en-3β-ol (1.5-4.2 μCi/kg) was administered intravenously to eight patients. Excretion rate in faeces and urine was respectively 19.6-37.4 % and 1.4-6.4 % of the administered dose in seven days. While total-body retention rate calculated from whole-body counting by γ-camera every 24 hours after injection was 58.5-83.1 % of the administered dose of this agent on the seventh day. Biological and effective half-lives calculated from total-body retention rate of this agent were 11.9-27.5 days and 10.8-20.4 days respectively, which coincided with the results from the excretion rate. The total-body absorbed radiation dose from ⁷⁵Se calculated on the basis of MIRD Pamphlet No. 11 was 1.72-3.56 m rad/ μCi. This agent in blood decreased to 6.1-7.3 % of the administered dose by the 14th day.

Two adrenal scintigrams clearly revealed an adenoma on the fifth and seventh day after injection of 2.0 and 1.6 μCi/kg respectively in a case of primary aldosteronism and clearly revealed an adenoma on the third day after 2.0 μCi/kg in Cushing's syndrome. In Bartter's syndrome injected 3.6 μCi/kg, bilateral adrenal image were revealed on the seventh day with liver uptake which became unnoticed on the 16th day, and then adrenal uptake became distinct on that day. In Fanconi's syndrome (2.0 μCi/kg) and high-renin essential hypertension (2.5 μCi/kg) bilateral adrenal image were revealed on the 14th and 16th days respectively. No adrenal uptake was revealed in two cases of low-renin essential hypertension and a case of Cushing's syndrome removed an adrenal adenoma.

Repeated administration of this agent should be avoided because of long biological half-life and large absorbed radiation dose. This agent was excreted mainly in bile. The adrenal image of excellent quality were obtained 7-14 days after injection of 1.6-2.0 μCi/kg.

POSITIVE IMAGING OF ARRHENOBLASTOMA OF THE OVARY WITH I-131-ADOSTEROL: CASE REPORT

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The first visualization of arrhenoblastoma with I-131-Adosterol (6β-iodomethyl-19-norcholest-5(10)-en-3β-ol-I-131), the adrenal imaging agent, was reported.

A 21-year-old single woman with a lower abdominal tumor and the manifestation of virilization was referred for adrenal scintigraphy because of the differential diagnosis between adrenal virilization and that due to an ovarian cause. Adrenal and ovarian imagings were performed using a scinticamera 7th-14th day after intravenous administration 1 mCi of I-131-Adosterol.

The both posterior adrenal images obtained using a pinhole collimator showed normal patterns. They led us to try to image the tumor. The anterior scintiphoto taken using a diverging collimator revealed a hot area in its lower left sided portion whose location coincided with the tumor. Then we tried to obtain its preciser image using a multi-parallel collimator; two hot areas in the tumor besides the radioactivity of stool in the colon could be detected.

Imaging of the removed left ovarian tumor confirmed the localization of I-131-Adosterol in it and its image was consistent with the preoperative finding. Two hot areas on the preoperative scintiphoto disappeared after operation. The pathological diagnosis of this tumor was arrhenoblastoma, intermediate form. The elevated plasma testosterone level (3.75 ng/ml) decreased to 0.784 ng/ml after operation.

The mechanism of its accumulation in arrhenoblastoma may be related to the fact that the ovary is a steroids-producing organ, and hyperfunctional state of the ovary may increase its uptake of I-131-Adosterol. Therefore other steroid hormones producing ovarian tumors such as feminizing tumors (granulosa and theca cell tumors) and masculinizing tumors (hilus cell tumors and adrenal-like tumors) are also suggested to be detectable with this agent.