L. Adrenals

^{131}I-Adosterol (6β-Iodomethyl-19-norcholest-5 (10) en-3β-01) as a new Adrenal Scanning Agent

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We have compared ^{131}I-Adosterol as an effective adrenal scanning agent to ^{131}I-19-iodocholesterol in respects of radiochemical stability, tissue distribution and toxicity.

^{131}I-Adosterol and ^{131}I-19-iodocholesterol were obtained by isotope exchange with Na ^{131}I to give specific activity 1mCi/mg and radioactive concentration 1 mCi/ml, respectively.

Both agents were stored at 5°C, 20°C, and 37°C for a month and these radiochemical purities were tested by the thin layer chromatography. Both Agents were fairly stable at 5°C, but at 37°C ^{131}I-Adosterol was relatively stable and its radiochemical purity on 7 days, 14 days and a month were 80%, 60% and 45%, respectively.

25μCi each of both agents was given intravenously to Wister male rats and these rats were sacrified on 1 day, 3 days and 7 days after dose. The major organs including the adrenals, liver, thyroid, kidney, lung, spleen, testicle and blood were excised and assayed for radioactivity. The accumulation in each organ was expressed as % dose/gm.

Both agents were highly accumulated and retained to the adrenals, and ^{131}I-Adosterol is concentrated ten times greater than ^{131}I-19-iodocholesterol. At 7 days, the adrenal to liver concentration ratio for ^{131}I-Adosterol was 851 as compared with 225 for ^{131}I-19-iodocholesterol. Radioactivity in thyroid of ^{131}I-19-iodocholesterol dosed rats was considerably higher than that of ^{131}I-Adosterol dosed rats. Generally, ^{131}I-19-iodocholesterol is excreted faster than ^{131}I-Adosterol to major organs. Radioactivity of ^{131}I-19-Iodocholesterol is excreted to urine much more than to feces. On the contrary ^{131}I-Adosterol is excerted to feces much more than to urine, and tlc showed that the most of radioactivity in feces was ^{131}I-Adosterol and that in urine was free iodine-131.

Adosterol suspended in olive oil was injected to the abdomen of mouse. No acute toxicity was observed even if this dosage reached to 60,000 times more of the ordinary administered dose in man.