Experimental Study for the Purpose of Decreasing the Radiation Injury Due to Radioactive Mercuric Compounds

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With increased application of radioactive pharmaceuticals, exposure of patients to radiation has attracted grave attention. Especially when mercuric preparations are used, the kidney is exposed to a large dosis. To eliminate the radioactive substance as early as possible after receiving diagnostic informations is one of the measures to relieve the patient of radiation injury.

Male ddN mice were used as experimental animals. Tracer doses of various radioactive mercuric preparations were intraperitoneally injected to them, and radioactivity was daily measured for 3 days with animal bodies and their excrements, using the whole-body animal counter. And at 3 days, radioactivity of ^{203}Hg in various organs was determined with the well-type scintillation counter. From immediately after the radioisotope injection, various drugs (in doses varying by toxicity) were given every 24 hours, that is, once daily for 3 days, and effects on the retention, excretion and organ distribution of ^{203}Hg were examined to evaluate the eliminating activities.

Drugs that decreased the retention of ^{203}Hg-MHP and accelerated its urinary excretion were BAL, mercaptoacetic acid (MAA), 2-mercaptopropionyl glycine (MPG), DL-penicillamin (Pen.) and GSH. Furosemide conversely increased the retention. L-CySH, rongalite and EDTA elicited no change.

Drugs that were effective for elimination of ^{203}Hg-chlormerodrin were MPG, MAA, and Pen. BAL lowered ^{203}Hg concentration in the kidney, but elevated it in the liver and brain. GSH decreased ^{203}Hg in the brain and pancreas, but did not change its amount in the other organs. Furosemide increased ^{203}Hg in the liver and pancreas. EDTA, DTPA and rongalite exerted no effect.

The drug which was effective for elimination of $^{203}HgCl_2$ was BAL.

All the mercuric compounds were increased in body retention under fasting condition. Effect of eliminating them differed in different compounds.

Method for Rapid Preparation of ^{99m}Tc Labeled Compounds by Using Stannous Chloride

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Using small amounts of stannous chloride as reducing agent, various compounds, such as human serum albumin, IgG Globulin, Inulin and sodium paraaminohippuric acid were effectively labeled with ^{99m}Tc.

The material to be labeled is mixed with $^{99m}TcO_4$ of high concentration, and immediately after the addition of $SnCl_2.2H_2O$ (5-10 μg)