

Studies on the Effects of Antithyroid Drugs on ^{131}I Metabolism in Human Body Using a Whole Body Counter

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It is important to study the distribution of ^{131}I in human body and the effects of several antithyroid drugs on it for the purpose of the protection against radiation hazards in accidental exposures of radioiodine.

At the beginning of the present study, a tracer dose of ^{131}I was orally administered to each of a normal male subject and a female hyperthyroid patient. Then, profile scannings were daily carried out for periods of 7 to 10 days by a whole body counter which is composed of two 8 in. $\phi \times 4$ in. NaI (Tl) crystals and 3mm lead lined 20cm iron shield. The thyroidal uptake of ^{131}I was measured by an usual method simultaneously with the profile scanning.

Each antithyroid drugs such as NaI, Methylmercaptoimidazole (Mercazol) and KCNS was orally administered with ^{131}I at intervals of a month in same subjects and the above procedures were repeated.

The results can be summarized as follows:

(1) Each of the drugs investigated was found to inhibit the thyroidal uptake of ^{131}I in the normal subject. However, there was no evident inhibition in the hyperthyroid patient.

(2) When NaI or Mercazol was given, the activity of ^{131}I in the abdominal region of the normal subject was higher than that of normal control, whereas it was lower in the treatments in the hypothyroid patient.

These findings suggest that NaI or Mercazol yield the increase of extrathyroidal iodine by such mechanism as secretion to saliva and gastric juice and absorption from the intestine, and that KCNS accelerate the renal excretion of extrathyroidal iodine. It may be useful to give KCNS with NaI or Mercazol to the subjects accidentally contaminated by radioiodine to reduce the radiation to the thyroid gland and to the total body.

IX. Metabolism

Autoradiographical Studies on Amino Acid Metabolism in Dermatological Field (Report 1)

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The patterns of amino acid incorporation of the normal, hyperkeratotic and parakeratotic skins were studied autoradiographically, using ^3H -methionine, ^3H -glycine, ^3H -valine.

The specimens from the normal skin, the skin of ichthyosis (hyperkeratotic) and that of psoriasis vulgaris (parakeratotic) were incubated in the Eagle's solution added with