

gave hyperbola type standard curve and other methods including dextran coated charcoal adsorption (CA), Fuller's earth adsorption and Veronal buffer paper chromatography gave sigmoid curves.

To elucidate the discrepancies between the results determined PEP and CA, the following experiments were performed; 1) reproducibility of B/F ratio determined by CA, 2) influence of the concentration of antisera and charcoal solution on B/F ratio and 3) optimal concentration of charcoal solution.

Reproducibility of B/F ratio determined by CA was not thought to be a major cause of the discrepancies.

Determination of % free values by combining various amounts of binding protein and ACTH revealed the fact that excess of charcoal adsorbed not only free ACTH but also

some part of immunoglobulin-bound ACTH and, to the contrary, with small amount of charcoal, some part of free ACTH remained unadsorbed.

When standard curves were depicted using aliquots containing 0, 5, 10 and 25 μ U of ACTH by PEP and CA, the B/F ratio of CA-standard curve at 0 μ U was lower than that of PEP-standard curve and the B/F ratios of CA-standard curve at 5, 10 and 25 μ U were higher than those of PEP-standard curve. The amount of charcoal adopted in this experiment was too much for 0 μ U aliquot, eventually adsorbing some part of protein-bound ACTH, and on the other hand, it was too small for 5, 10 and 25 μ U aliquot allowing some part of free ACTH unadsorbed. This is the major cause of the fact that the standard curve of CA is sigmoid.

Study of ^{131}I Diethylstilbestrol Disodium Diphosphate

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Diethyl stilbestrol disodium diphosphate (Honvan), which has been in wide use for cancer of prostate is said to change to active form (stilbestrol) by acid phosphatase in the prostate.

Tubis et al. suggested the probability of scintiscanning of the prostate gland by ^{131}I Honvan. Yet there has been no literature on this subject.

This paper deals with the results of animal experiment and clinical studies with this drug. 55 μCi of ^{131}I Honvan for each rat was administered by tail vein. Specific activity of ^{131}I Honvan was 67 μCi per mg. Each group of this experiment consisted of 3 male rats weighing 110~150 gm. Radioactivities each organ (prostate, liver, kidney, spleen, heart,

lung, intestine, adrenal and testicle) were determined in different time intervals (5, 15, 30, 60 min., 3, 6, 12, 24 hr., 2, 3, 5, 7 day) and the Relative Specific Activity (R.S.A.) of each organ was computed. The highest concentration was observed in the liver followed by the kidney, and a relatively long retention was recognized in the liver. The R.S.A. in the prostate was demonstrated to be lower than expected.

In clinical studies of 6 patients (3 cancers of the prostate, 1 prostatitis, 1 chronic cystitis and 1 tumor of the bladder) 500 μCi of ^{131}I Honvan was administered for these cases intravenously. The uptake by each organ was the same as described in the rats, and the uptake by metastatic lesion of prostatic can-

cer was not so large as expected. The scintigram of the prostate gland was not depicted.

Currently, estrogen therapy for carcinoma

of the prostate has been subjected to wide discussion and to reconsideration. Further studies on this problem are now under way.

Autoradiographic Study on the Distribution in Mouse Tissues by ^3H -Prednisolone

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The distribution and excretion of ^3H -prednisolone in mouse tissues were investigated by micro-autoradiography.

The tritiated prednisolone ($15 \mu\text{Ci/g}$; body weight) was administered intraperitoneally. The animals were sacrificed after injection with lapse of time. The autoradiographs were made by stripping method as paraffin sections. Soluble isotope of the preparates was as well as possible washed away with water. The back ground and the "diffusion phenomenon" of isotope were few seen.

The incorporation of ^3H -prednisolone was most prominent in the liver and the kidney. The silver grains were found also in the gastrointestinal tract. These organs seem to be play a role of metabolic pathway of prednisolone.

The silver grain count in the liver parenchyma was eighteen in number as average, but in the Kupffer's cells and in the connective

tissue was a few.

In the kidney the silver grains of ^3H -prednisolone were frequently found in the epithelium of renal proximal tubuli, but rarely found in the glomeruli and the connective tissue.

The label in the stomach was fairly found in the muscle layer and the submucosa, but a few in the gastric glandular cells. The incorporation in the gastric gland was mainly seen in the parietal cells.

In the small intestine the silver grains were found in the villi cells and the submucosa.

The pancreas, the heart, the lungs and the spleen have a few numbers of silver grains in this experiment.

It is probable that the silver grains mean the label which resulted from the administration of ^3H -prednisolone. But it is impossible that these indicate always ^3H -prednisolone itself.

Micro Determination of Plasma Corticosteroids by Competitive Protein-Binding Radioassay

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A simple sensitive method of estimating cortisol and corticosterone in plasma has been reported, utilizing the steroid-binding properties of plasma. The addition of increasing amounts of unlabeled cortisol or corticosterone

to an equilibrium system containing standard plasma and a constant amount of ^3H -corticosterone caused a proportional decrease in the percentage of ^3H -corticosterone bound to the plasma protein.