

of this fraction and the same aliquot of whole urine was counted by well type scintillator.

Whole body longitudinal profile scannings were serially carried out at 5 minutes, 1.5 hours, and 24 hours after the injection of 80 μ C of ^{131}I -UK. The profile scannings were also carried out with RISA, ^{131}I Na, and ^{203}Hg -Neohydrin, and these profiles of the scan were compared with that of ^{131}I -UK.

Materials were two normal subjects, a case of gout-nephropathy, and a liver cirrhosis with thalassemia.

In normal subjects, the highest peak of the profile of the scan at 5 minutes, was in the region of liver. At 1.5 hours, the peak was divided into two and they removed to kidney and urinary bladder. After 24 hours, there was very low radioactivity remaining in the region of thyroid gland and middle part of the body. The profiles were similar to that of ^{203}Hg -Neohydrin except thyroidal uptake, and was far different from that of RISA and/or ^{131}I Na. Urine-excreted radioactivity for 24 hours was 65% of injected activity, but the radioactivity of urokinase-fraction

was very slight (0.23%) and this was negligible.

In a case of liver cirrhosis, the behavior of ^{131}I -UK observed by the same external tracing was not so different from that of the normal subjects. His urinary excreted radioactivity and urokinase activity were the same as those of the normals.

In a case of gout-nephropathy, the behavior of ^{131}I -UK traced by the same procedure was much different except at 5 minutes. Urinary bladder peak of the profile scan was found little even after 1.5 hours and radioactivity after 24 hours remaining within his body was considerable. Urinary excretion of radioactivity was slight (6.9%). Urinary urokinase activity was as low as 8 per cent of normals.

From these results, our conclusions at the present time are as follows: (1) kidney plays a much greater role than liver does concerning the metabolism of urokinase. (2) It seems that urokinase is not a substance leaking unaffected through kidney into urine.

^{131}I -Fibrinogen Catabolism, Fibrinogenolysis and Fibrinolysis

M. MURAKAMI, K. KURAKANE, M. KURODA, K. ONCHI Y. KOSHIMURA
I. HOSHIBA and M. NOTO

Second Department of Internal Medicine, Kanazawa University School of Medicine

We presented the 1st paper of this study at the 2nd meeting of this association.

In this paper, influence on ^{131}I -fibrinogen survival of fibrinolysis and/or fibrinogenolysis was observed.

Methods: Fibrinogen (supplied by Midori-juji Co., Ltd.) was iodinated by the iodine monochloride method of McFarlane's with a slight modification.

The fibrinogen labelled in this way had the same property as native fibrinogen on paper- and immuno-electrophoresis and thrombin clottability. Specific radioactivity was 80-50 μ C per mg. protein.

Turnover studies were carried out in 19 materials, including 5 normals and other cases of various diseases.

Pearson's theory was applied to this investigation. Plasma radioactivity was

counted of thrombin clottable fibrin per ml. of plasma. About the same plasma, fibrinogen concentration, thrombin time and euglobulin lysis time were measured.

Results: Normal values: plasma disappearance half life of ^{131}I -fibrinogen was 3.2-4.0 days; turnover rate, 52-mg./dl./day; half life of radioactively remaining in body, 5.2 days; fibrinogen concentration, 310 mg./dl; thrombin time, 20-28 sec; euglobulin lysis time, 15 hours.

In general, plasma disappearance of ^{131}I -fibrinogen was not influenced by plasma fibrinolytic and/or fibrinogenolytic activity. Between half life, turnover rate, plasma fibrinogen concentration, thrombin time and euglobulin lysis time, no definite correlation could be found.

We, then, grouped the materials into the

three types, based on half life and thrombin time.

1st group: half life of plasma disappearance is short and thrombin time is delayed; 2nd group: half life is short but thrombin time is normal; 3rd group: both of them are normal.

1st group contained liver cirrhosis, nephrotic syndrome, and malignant tumor, etc.; 2nd group, aortitis syndrome, and collagen-like disease; 3rd group, normals. There seem to be certain characteristics among the groups about ^{131}I -fibrinogen plasma disappearance and thrombin time. But euglobulin lysis time was indefinite in these groups.

Between the 1st and the 2nd group, we

found some difference of half-life of radioactivity remaining in a body. In 1st group, half life of plasma disappearance as well as remaining radioactivity was short, but in 2nd group half life of remaining radioactivity in body was not so short in spite of plasma disappearance being as short.

Conclusions: There seem to be two different processes of catabolism of fibrinogen. In 1st group, fibrinogenolytic process plays a greater role, but in 2nd group, coagulation process plays a greater role, although we must consider about tissue factors. Fibrinolytic activity was less related to fibrinogen catabolism. Investigations will be continued on.

X. Neoplasm

The Possibility for Delineation of Human Tumors with Labeled Tumor Affinity Compound

K. HISADA, T. HIRAKI, H. KAWANISHI, S. OHBA and S. RIKIMARU

Department of Radiology, School of Medicine, Kanazawa University, Kanazawa

There is some limitation in the size of a space occupying lesion detectable by scintiscanning (scintigraphically negative delineation) as in liver scanning, due to radioactivity in the surrounding tissue and respiratory movement of the organ and to other factors. In the scintigraphically positive delineation of a tumor, on the other hand, there is far less limitation. The image of the tumor itself might be enlarged by respiratory movement. Theoretically extremely small tumors should be detectable provided they are much more radioactive than the surrounding tissue.

Out of 14 compounds examined in a series of animal experiments using Yoshida sarcoma, ^{131}I -fibrinogen showed the highest affinity for tumorous tissue compared with surrounding normal tissue. ^{131}I -Albumin, ^{131}I -globulin and ^{197}Hg -neohydrin showed relatively high affinity for tumorous tissue next to ^{131}I -fibrinogen and ^{131}I -thyroxine, ^{131}I -

triiodothyronine and ^{75}Se -methionine lower affinity and ^{131}I -PVP no.

One mCi of ^{131}I HSA was administered intravenously to each of 12 patients with malignant tumors and they were scanned at 3, 24 and 48 hours. Four of the 12 cases showed good tumor delineations by scanning. These included cancer of the left maxillary sinus (squamous cell carcinoma), a focal metastatic lesion of the left lower femur from pulmonary cancer (squamous cell carcinoma), a giant cell tumor of the left femur (Grade II) and cutaneous metastasis of the left lower leg from pulmonary cancer (undifferentiated cell carcinoma).

Fair tumor delineation was obtained in two cases, one of cancer of the larynx (squamous cell carcinoma) and the other of reticulum cell sarcoma of the neck.

Poor delineation was seen in three cases, one of pulmonary cancer (undifferentiated