Uric Acid Metabolism in Hyperuricemic Hypertension

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The metabolism of uric acid in hypertensives with unexplained hyperuricemia was studied in comparison to that in gouty and/or normal subjects.

Materials and Methods: Materials were three hypertensives with hyperuricemia, four gouty and two normal men. The plasma (Pur) and the urinary (UR) uric acid was assayed by a spectrophotometric method utilizing phosphotungstic acid. Renal clearance of creatinine (Ccr) and uric acid (Cur) were measured at the same time. From the values thus obtained, the following parameters were calculated: glomerular filtered load of uric acid (Fur = Pur×Ccr), and net tubular reabsorption rate of uric acid (Tnr = Pur - Uur×V). Ten μCi of uric acid-2-14C was injected intravenously as lithium urate. For the following seven days, each 24-hour urine was collected. Radioassay of the uric acid isolated from the urine was performed in a liquid scintillator with the use of CO2-oxidation method. The total amount of 14C excreted in urinary uric acid was compared with the amount of 14C injected dose as uric acid to determine the per cent of the dose recovered as urinary uric acid. The miscible pool and daily turnover of uric acid were calculated. The de nova synthetic rate of uric acid was studied with glycine-(U)-14C administered orally.

Results: (1) Plasma uric acid level of gout ranged from 7.3 to 14.0 mg/dl., that of hypertension from 8.2 to 11.5 mg/dl., and that of normal subjets from 2.8 to 5.0 mg/dl. (2) There was large miscible pool in hypertension, the amount of which matched that of gout. (3) The synthetic rate of uric acid was not elevated in hypertension. (4) The cumulative urinary uric acid-14C recovery was very low in hypertension, and in this respect, hypertension was different from gout. (5) Despite of normal range of Ccr, Cnr was distinguishably low in hypertension. The low Cnr in hypertension was attributable to elevated Tnr, as Fur was larger in hypertension than in the two.

Conclusions: The results suggest that hyperuricemia in hypertension can not be attributed to overproduction of uric acid, and it is concerned with some specific type or renal tubular disturbances associated with hypertension. The relationship between hypertension and the tubular disturbance remains yet to be further elucidated.

VI. Liver, Biliary tract and Spleen

Scintigram of Liver Injury Localized in Irradiated Area (1)

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Six cases, which showed partial liver injuries on liverscintigram caused by radiation therapy to the neighbouring organs of the liver, were presented.

Each scintigram showed filling defects on the irradiated area. Scintigrams were taken 1 month to 2 years and 3 months interval after irradiation. Total dose was 5000-7000 R in each. Three cases were proved histologically. Pathologic specimen revealed the three