CLINICAL APPLICATION OF URIKINASE TO NEPHROPATHY. (REPORT OF GROUP STUDY) T. Abe, Teikyo University School of Medicine, Tokyo, Japan.

Coagulation and fibrinolysis system have been imagined to have some pathogenic influence on various kinds of nephropathy. Our study group on the clinical effect of urokinase (UK) administration to nephropathies applied this material to 106 patients with acute and chronic glomerulonephritis, nephrotic syndrome with different causes and renal failure together with

From 120X10⁴ to 900X10⁴ units of UK was given in ten to twenty-two days solely or together with corticosteroid, dipyridamole, clofibrate, furosemide, spironolactone, -methyl-dopa, indomethacine, cyclophosphamide, azathiopurine and so on. Heparin was also employed to some control or comparison cases in daily doses of five to fifteen thousand units. Daily amounts of urine, urinary protein, phenolsulphon-phthalein excretion, creatinine clearance were found responsive to UK administration and their beneficial changes were realized statistically in cases of chronic glomerulonephritis (22 cases in 47), rapidly progressive glomerulonephritis (2 in 5), nephrotic syndrome (5 in 35) and some others showed only decrease of urinary protein. As for the cases of renal failure, no definite occlusion was drawn. Only a few cases gave some clues of side effect such as headache, nausea and aggravated hematuria. Histological classification was also tried to find that the proliferative type was most responsive to this treatment.

HYPERCOAGULABLE STATE EXPRESSED AS THE MOLECULAR INCREASE IN THE MINUTE POPULATION OF PLASMA FIBRINOGEN. M. Kazama, Y. Maruyama, T. Kinoshita, J. Matsuda, I. Nakamura and T. Abe, Teikyo University School of Medicine, Itabashi, Tokyo, Japan.

It is expected that the hypercoagulable state would induce the qualitative alteration in the minute population of plasma fibrinogen.

The plasmas of 120 cases were chromatographed on Biogel A-15m column and the elution profiles of fibrinogen complexes eluted at the initial part were analysed using staphylococcal clumping test on microtitration plate.

The arbitrary scores for the hypercoagulability were given to each result according to the profile.

All of the normal plasma gave the profiles shown at the top of figures and the scores ranged 1-4. The plasmas of DIC used to give the profile shown at the middle with scores larger than 10, of which finding was highly coincident with the clinical diagnosis and sometimes more specific than any other test. The chromatography in cases of various thromboses including cerebral, myocardial and diabetes mellitus with vascular changes revealed the specific profile shown at the bottom with the scores 5-10. The thrombolytic therapy of these cases with urokinase resulted into the temporal disappearance of the specific profiles, but they re-appeared soon after the discontinuation of the therapy.

MEASUREMENT OF AMOUNT OF INVAGINATED MEMBRANE IN MAMMALIAN PLATELETS BY OSMOTICALLY-INDUCED SPHEROCYTE FORMATION. John G. Milton and M.M. Frojmovic, Department of Physiology, McGill University, Montreal, Canada.

Invaginated membrane of the surface-connected canalicular system (SCCS) of the resting platelet can be potentially externalized. We have estimated the SCCS surface area by carefully swelling platelets in hypotonic media. Platelets were osmotically stressed by either interfacing a drop of platelet-rich plasma (PRP) with distilled water on a siliconized glass slide or directly in a test tube by careful additions of 60-80% by volume water. Surface areas of the platelets were estimated from a cinematographic analysis of freely rotating platelets. Within five minutes of the addition of water, large smooth spheres (spherocytes) are formed. Soluble, cytoplasmic lactate dehydrogenase activity is not released and visible membrane damage as estimated from dark-field microscopy observations does not occur for at least one hour. The mean value of the spherocyte diameters was $3.9 \pm 0.6 \mu\text{m}$ (3 human donors) and did not change over 5 - 60 minutes. It is estimated that the volume of the spherocyte is ~550% greater than that of the original disc and that the surface area has increased by ~300%. Similar results were obtained for rabbit platelets.

Since platelet swelling induced osmotically has been shown to yield large spheres with the disappearance of SCCS (J.G. White, personal communication), it is concluded that: 1) the SCCS of the resting platelet can be easily externalized, and 2) osmotic spherocyte formation allows a quantitative estimation of the SCCS surface area.