

exceeded 7.0 ng/ml were metastatic cases of liver or peritoneum.

**Positive ratio of tumor markers in various cancerous diseases**  
(> normal values)

Cancerous diseases	No. of cases	Positive ratio of tumor markers				
		AFP	CEA	Ferritin	Calcitonin	Elastase 1
lung Ca.	138	—	61 %	36 %	71 %	%
hepatocellular Ca.	263	79	42	54		
choleangio Ca.	7	0	29	43		
metastatic liver Ca.	135	19	84	49		
gall bladder Ca.	18	11	61	61		
extrahepatic bile duct Ca.	14	0	50	64		
pancreatic Ca.	44	0	80	61		70
esophageal Ca.	39	3	28	44		
gastric Ca.	156	12	47	23		
colonic Ca. & rectal Ca.	108	4	63	29		

## 4

DRUGS AND BODY COMPONENTS. Y.Sasaki. Toho University School of Medicine. Tokyo.

Drugs: The principle of the individualized therapeutic drug monitoring (TDM) was reviewed. The clinical role and importance of TDM were demonstrated illustrating representative cases treated with digoxin, deslanoside, tobramycin, teophyllin and phenobarbital. A new method of estimating digoxin blood levels at steady state was evaluated. Blood digoxin concentrations at transition state were used for the estimation of digoxin level at steady state based on the open linear one compartment model. The estimated plasma levels agreed well with measured blood concentrations at steady state. Deslanoside was measured with digoxin RIA kit utilizing the high cross reaction (76%) of antidigoxin antibody with deslanoside. Requirement for rapid assay of plasma drug concentrations were met by the successful stat assay of digoxin, which remarkably increased utilization of digoxin RIA. Assessment of assay methods for tobramycin comparing RIA, EIA, HPLC and bioassay revealed high sensitivity, good precision and reproducibility of RIA.

Body components: Clinical significance of measuring TBG,  $\beta_2m$ ,  $\beta TG$ , PF4, trypsin, elastase 1 and bile acids were discussed demonstrating our clinical data. High incidence of elevated serum  $\beta TG$  was observed in patient with mitral stenosis and history of thrombosis. In advanced diabetic  $\beta TG$  and PF4 were elevated and trypsin was decreased.

## 5

MEASUREMENT OF HB VIRUS ASSOCIATED ANTIGEN AND ANTIBODY BY RIA. Kiyoshi Okada. Tokyo Metropolitan Okubo General Hospital. Tokyo.

The hemoagglutination method is widely used both in clinical practice and in research for the detection of hepatitis B virus associated antigen and antibody. However, this method has a low detection sensitivity for anti-HBs antibody, and it is necessary to use the RIA method for the detection of anti-HBs antibody after the administration of HB vaccine. To prevent babies from becoming HB virus carrier mothers due to maternal transmission of HB virus, the administration of HB immunoglobulin is effective, but by means of an assay of HBe antigen by the RIA method, it will be possible to decide more precisely than currently on the application of HB immunoglobulin administration.

## 6-(1)

APPLICATION OF RADIORECEPTOR ASSAY (RRA) IN ENDOCRINOLOGY. T.Tsushima. Tokyo Women's Medical College. Tokyo.

RRA has been proved to be very useful for detection, purification or measurement of various hormone-like substances (hormone agonists) and hormone-antagonists. Antibody to hormone receptors can be detected also by RRA-related technique. We have developed a new immunoprecipitation method for anti-insulin receptor antibody present in the serum of diabetic patient with type B syndrome.  $^{125}I$ -insulin was chemically cross-linked to human placental membranes using disuccinimidyl suberate (DSS).  $^{125}I$ -insulin crosslinked membranes were solubilized with Triton X-100 and incubated with anti-receptor serum and then with anti-human IgG rabbit serum. After centrifugation, radioactivity of the pellet was determined. All sera from 10 patients with type B syndrome were able to precipitate  $^{125}I$ -insulin cross linked receptor dose-dependently. Immunoprecipitation was not affected by the presence of excessive amount of unlabelled insulin, suggesting the presence of antibodies that recognize the determinants outside the insulin binding sites on the receptor molecule. As compared with insulin-binding inhibition assay, the immunoprecipitation assay was much more sensitive. The effect of anti-insulin antibody could be removed simply by the addition of excess of unlabelled insulin. The immunoprecipitation will prove to be useful for detecting autoantibodies to hormone receptors.