and antibody by SP-RIA method.

Result:

As the sensitivity in detecting HB antigen and antibody in the present method is found at a level of 90% on the base of the sensibility in the SP-RIA method and the PHA method for the detection of HB antigen, our method is believed to have a great value for future application in the clinical field.

Investigations on the Measurement of Serum Vitamin B_{12} Values by Radioassay Method

S. KARIYONE, R. MORISHITA and WAKISAKA

First Division, Department of Internal Medicine, Faculty of Medicine, Kyoto University

K. NAKAJIMA

Radioisotope Laboratory, Kyoto University Hospital

Vitamin B_{12} levels in the serum has an important role for the diagnosis of hematological disease. Determination of serum vitamine B_{12} values has became much easier since radioassay kit for this purpose can be available instead of microbiological assay.

Determination of serum B_{12} values was performed using phadebas B_{12} Kit of pharmacia Co. Ltd. and the conditions to get accurate measurement were investigated.

Serum B_{12} levels of same serum measured by different kits were distributed within $\pm 15\%$ of mean value. The reasons which were resulted such widely distribution of the values, was investigated.

There was a moderately differences between the shape of standard curves obtained from different kits. This might result a relative large variation of vitamin B_{12} values because the abscissa are plotted by log scale. Especially, in the area of high concentration of B_{12}, slight difference of standard curve makes a large change of B_{12} value compared with that in the area of low concentration. From this result, it was dicided that 0.5ml of extracted and diluted serum was used instead of 1.0ml of it.

Percent radioactivity of each sample against zero sample was measured on eight samples from same serum. Each B_{12} values were evaluated from three different methods and the variation of these values by each method were compared.

Percent values for the counts on various B_{12} concentrations against zero sample were plotted on a lin-log paper (a) or plotted on a logit-log paper (b). Using the percent of radioactivity from unknown sample against zero sample, B_{12} values of the sample was read directly by the standard curve (a) or was read from the logit transformed value on the standard line (b).

Two differnt volume of unknown sample were assayed and logit transformed value of them were plotted on a logit-log paper with B_{12} standards. The combined slope of them was calculated and the relative potency of the sample was evaluated from the slope using a computer (c).

There were a few differences on the

distribution of B_{12} values in same serum between the three method.

The best result was obtained from the method C.

There were a significant corelation between the vitamin B_{12} values evalueted from microbiological assay using L. leichmannii and this phadebas radioassay.

From these results, it is concluded that this assay method of serum vitamin B_{12} is very useful and simple method, and the evaluated B_{12} values are quite accurate and can be used clinically as the same meaning of the value obtained from microbiological assay.

Competitive Radioassay of Serum Vitamin B_{12} Significance of Serum Vitamin B_{12} Estimation in Liver Disease

K. NAKAYAMA, T. IRISA, M. NAKAMURA, K. KIMURA and H. IBAYASHI

The Third Department of Internal Medicine
Faculty of Medicine, Kyushu University

Serum vitamin B_{12} levels by radioassay were demonstrated to increase, compared with those in normal subjects and patients with gallstone or chronic pancreatitis, in patients with liver disorders, especially acute hepatitis and liver cancer. In patients with acute hepatitis, a highly significant correlation between serum vitamin B_{12} and transaminase was observed, but no significant relationship was found between serum vitamin B_{12} and either serum bilirubin or iron concentration etc. In hepatoma as well as metastatic liver tumor originated from pancreas, serum vitamin B_{12} was shown to marked increase. From these results, clinical usefulness of serum vitamin B_{12} determination by radioassay kit was confirmed in the diagnosis of primary and metastatic liver tumor from pancreas as well as in diagnosis of course of acute hepatitis.

Fundamental Studies on Radioimmunoassay for Digitoxin and Digoxin using ^{125}I Labeled Antigen

H. KUROSAKI, N. NAKAZAWA and H. OGAWA

Daiichi Radioisotope Laboratories, Ltd.

We have already presented our study on digitoxin and digoxin radioimmunoassay using ^{3}H labeled antigen and are selling digoxin radioimmunoassay kit.

Now we performed fundamental studies on digitoxin and digoxin radioimmunoassay using ^{125}I labeled antigen.

Materials and Methods