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IS BETWEEN-ASSAY VARIATION PRECISION OR BIAS ?

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When the pairs of independent measurements (X1,X2) have a bivariate normal, points of equal probability density form a circle. However in RIA within assay precision is generally smaller than the between assays precision. The latter is better to say a bias, that is systematic error. Bivariate statistical analysis can show components of within assay precision and between assay precision or bias. Mahalanobis' generalized distance was applied to analyse components of within assay and between assays variations. Equal probability density shows a long circle. The shape of long circle depends on correlationcoefficient between the pairs of independent assays. Thus when the correlation coefficient is zero, the long circle becomes a true circle,suggesting there is no bias. When there is a good correlation, the long axis of long circle becomes larger and significant bias is shown.

Some of the assays showed a significant bias.

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AUTOANTIBODY AGAINST IODINATED GASTRIN.

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Autoantibodies against hormones influence the measurement of serum levels by RIA. In this study, we first demonstrate the presence of gammaglobulin binding iodinated gastrin. Methods: Gastrin was iodinated using CT technique. Diiodinated gastrin (DIT-G) and monoiodinated gastrin (MIT-G) were separated by DEAE sephadex A-25. Results: Three sera, which showed lower serum gastrin levels than zero in gastrin RIA using charcoal dextran for B/F separation, were incubated with MIT-G or DIT-G at 4°C. These sera bound DIT-G, but didn't bind MIT-G. The binding abilities of these sera to DIT-G were present in 7S fraction or Protein A binding fraction. These bindings were not displaced by noniodinated gastrin. Conclusion: The existence of the sera which have a binding ability specifically to DIT-G was first shown in this report. The ability was comigrated with those IgG fraction. It may be concluded that the binding ability is autoantibody against DIT-G. Pathogenesises to develop such an autoantibody are unknown.

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MEASUREMENT OF BLOOD CEA BY A SOLID-PHASE METHOD USING ANTIBODY-COATED PLASTIC BEADS AND ITS CLINICAL APPLICATION.

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Carcinoembryonic antigen (CEA) is well known as one of the tumor marker, but its specifity for cancer is not yet certified. However its usefullness in the clinical application has been appreciated. Especially, it is used as the important index in the cases after their surgical operation, during their chemotherapy and during their radiation therapy.
Measurement of blood CEA has been established with Farr's method, Z-gel method, sandwich method and antibody-coated paper disc method. We evaluated a radioimmunoassay kit for CEA, which is based on a solid-phase method using antibody-coated plastic beads.
This kit is simple technically and is able to determined with small sample as the fundamental studies. Also, their values in this method indicate higher than that in the antibody-coated paper disc method.
Blood CEA values in 200 normal cases and in 150 cases of digestive organ diseases with and without cancer were measured. These results are reported as the clinical application.

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FUNDMENTAL AND CLINICAL EVALUATION OF CEA RIA KIT "DAIICHI".

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We used the CEA RIA kit (Daiichi Radioisotope Labs, antibody coated bead system) and performed fundamental and some clinical study.
The results obtained were as follows;
(1) Reproducibility of standard curve, intra-assay precision and inter-assay precision were almost satisfiable.
(2) Correlation of measured value obtained by the kit and Dainabot's kit was r=0.889 (n=107) statistically significant positive correlation was obtained.
(3) The mean value of serum CEA of normal subjects (n=113) was 2.4±1.9 ng/ml.
(4) In 48 cases of benign diseases, ratio of elevated CEA level was 25% in chronic enterogastritis, 0% in gastroduodenal ulcer, 34.8% in hepatic disease, 27.3% in cholelithiasis, and 27.1 in the total.
(5) In 156 cases of malignancies, ratio of elevated CEA level was 38.6% in gastric cancer, 80.9% in colon cancer, 83.0% in pancreatic cancer, 65.0% in hepatocellular carcinoma, 57.1% in lung cancer, 21.6% in other cancer, and 46.2% in the total.
In conclusion, the kit can be envisioned to be suitable for clinical routine examination.