several samples. Urine CEA values showed good correlation (r=0.84) between the two methods. However "double antibody RIA" showed thirteen times higher values than the other method.

The incidence of positive CEA tests agreed well in both methods for cases with cancer of the lower digestive tract and the lung. But sera of all cases with renal cell carcinoma showed normal CEA levels by the "double antibody method", while serum CEA was positive by the "one step sandwich method" in 43% of renal cell carcinoma cases. Positive tests were obtained in 22% of bladder cancer cases by the former method and 75% by the latter method.

It was concluded from the present study that the "double antibody RIA" was highly specific for cancer of the digestive tract and the lung.

Plasma CEA Measured by RIA Using One Step Sandwich Method

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Plasma CEA was measured by RIA Kit (Dainabot) based on one step Sandwich method.

The result was evaluated in comparison with our previously reported data of plasma CEA measured by Z-gel method.

Basic evaluation of the Kit included within assay error of 6–10% (C.V.), between assay error of 4% (C.V.) and recovery rate of 106–160%. Plasma CEA level was 18% lower than serum CEA level.

Plasma CEA level measured in 32 normal control was 1.85 ± 0.49 ($\bar{m} \pm 1$ S.D.), which was significantly lower than that measured by Z-gel method (2.11 ± 1.15).

Plasma CEA levels in 183 patients measured by the two methods correlated well with regression equation of Y(Z-gel)=1.8X (Sandwich)+2.0 (r=0.67).

Twenty four of 26 patients with benign diseases who had false positive CEA level (>5 ng/m*l*) by Z-gel method showed false positive CEA level (>2.5) by sandwich method. Of 82 patients without carcinoma 62% was normal (<2.5) in plasma CEA level. Of 101 patients with carcinoma 38% was positive (>2.5) and 13% showed CEA over 10ng/ml.

Ratio of positivity (>2.5) was compared among primary organs of carcinoma. High positivity was observed in the colorectum (68%), lung (50%) and stomach (50%). Positive ratio was releatively low in cancer of esophagus (14%), and urogenital organs (29%). The higher CEA values were observed as the stage of carcinoma was advanced.

In cancer patients who received successful radical operation CEA level was relatively low before operation and was significantly decreased post-operation. In contrast, CEA level was high and become higher after operation in patients who recieved palliative operation.

Measurement of plasma CEA by sandwich method was useful for the detecion of advansed cancer and evaluation of treatment and course of cancer patients. The clinical value was just as same as that of CEA measured by Z-gel method. Though the former gives lower value than the latter.