

ABSTRACT

Carcinoembryonic antigen (CEA) was firstly believed to be the tumour specific antigen for cancer of the digestive tract system, but subsequent extensive studies in many patients with various diseases showed that such contention is not the case, since elevated CEA are found in many diseases, other than digestive tract cancer. For this reason, the value of the CEA test for the diagnosis of carcinoma is limited. Nevertheless, it can be useful as a diagnostic test when use in combination with other tests and clinical symptoms. In addition, the CEA test has a proven value in giving prognosis in the follow-up cases.

The method most commonly used to detect CEA is the radioimmunoassay (RIA) with its sensitivity of detecting as small as 1 - 2 ng CEA per ml of the plasma or serum. This test is not appropriate for use in developing countries such as Thailand because of the high cost. The objective of this study was to develop less expensive test requiring less sophisticated equipment for use in our laboratory. The test developed was the radioactive counter-immunoelectrophoresis (RCIE), the threshold sensitivity of which was 4.7 ng CEA per ml when used in conjunction with 20 times concentration of the perchloric acid extracted serum. By this technique, it was found that 81.8 % of patients with carcinoma of the gastrointestinal tract were positive

whereas only 5 % of patients with non-malignancies were positive. In patients with carcinoma other than the gastrointestinal tract, the percentage positivity varied according to the nature of the carcinoma. Comparison between the results of RCIE and RIA in randomly selected patients with carcinoma and in the control showed that they were concordant. The disadvantage of this technique was long-period of time requiring to complete the assay, however, the inherent advantage over RIA or ELISA was its property to show how many systems of antigen-antibody reaction by demonstrating precipitation bands whereas the RIA or ELISA detected all system and could not tell how many reactions occur.