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DETERMINATION OF SERUM NCA BY NCA-RIA (1).

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In commercially available CEA-RIA methods anti-CEA sera showed the positive cross-reactivity with NCA which exists in normal tissue (also present in tumors). Thus, CEA was determined by CEA-RIA using specific antibody for CEA after absorption with NCA preparation.

NCA preparation (Mr,60,000) purified from the liver metastasis of a patient with colo-rectal cancer and its antibody were used for RIA. Because Anti-NCA sera showed cross-reactivity with CEA, this antibody was absorbed with the purified CEA to make the specific antibody for NCA. ^{125}I-NCA, the specific antibody for NCA and test serum (0.05ml) were incubated overnight and B/F was separated by PEG method. Serum NCA level in normal subject was under 200 ng/ml.

No correlation between serum CEA and NCA in cancer patients was observed. NCA was less useful than CEA as tumor merker, although some cases in cancer patients showed increased NCA in accompanied with increased CEA. It is interesting that CEA is more useful tumor marker than NCA, in spite of both antigens have AG-antigenic determinant.

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DETERMINATION OF URINARY NCA BY NCA-RIA (2).

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Urinary CEA, NCA and α_1-acid glycoprotein (AG) levels were determined by the specific antibody for each RIA method. One liter of urine was concentrated by lyophilization after dialysis against distilled water. When the concentrated urine was fractionated by Sephadex G-200 column, both NCA (Mr, 60,000) and AG(Mr, 50,000) fractions were observed.

Normal level of NCA and AG in urine was about 30 µg/l and 500 µg/l respectively. However, CEA(Mr, 180,000) and the small fragment of CEA were not found in the urine of normal subject. Positive CEA(Mr,180,000) was found in the urine of cancer patient with high CEA level in accompanied with large amounts of urinary excretion of both NCA and AG.

Previously, we demonstrated that CEA and NCA contain immune determinant in common with AG. AG concentration in normal serum showed 1,000 and 100,000 times higher than NCA and CEA respectively. Thus, the urinary excretion of NCA and AG with small molecular weight in normal subject may be due to the serum concentration. However, the urinary excretion of CEA was also observed in cancer patients with high serum CEA level.