Evaluation of CA 242, CA 72-4 as tumor markers for cancer colon

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Master (Msc) Thesis, 2006

Abstract
Background and aim of work: Colorectal cancer (CRC) is the third most common cancer worldwide. The use of tumor markers has become a very attractive method for the detection and diagnosis of neoplastic diseases. CA242 and CA72-4 are carbohydrate structures that are synthesized and expressed by both normal and malignant cells of the gastrointestinal tract (GIT). The present study aimed at evaluation of the role of Cancer Antigen (CA 242) and Cancer Antigen (CA 72-4) as serum tumor markers for tumor detection in colorectal cancer in comparison with benign gastrointestinal diseases versus normal healthy controls.

Patients and methods: Serum CA 242 and CA72-4 were assayed in 40 patients with CRC, 30 patients with benign colorectal lesions and 20 apparently healthy individuals. Results: The medians of the four tumor markers (CA242, CA72-4, CEA, and CA19-9) for the malignant and non-malignant groups (including control and benign groups) were: for CA 242, 15.5 U/ml and 6.5 U/ml; for CA72-4, it was 4.7 U/ml and 1.0 U/ml; for CEA, 4.3 ng/ml and 1.34 ng/ml; and for CA19-9, it was 15.45 U/ml and 8.9 U/ml respectively; with a significant difference between the two groups as concerning CA242 (P=0.03), while a high significant difference was obtained regarding CA72-4 (P=0.003) and CEA (P=0.002) respectively; however, no significant difference was achieved regarding CA19-9 (P=0.54). ROC curve was constructed for CA242, CA72-4, and CEA as for their Sensitivity, Specificity, and overall accuracy as diagnostic tests for CRC screening. The AUC for the three markers was 0.586, 0.874, and 0.730 respectively. By considering the cut-off values at 8.3 U/ml for CA242 and CA72-4 at 1.55 U/ml and for CEA at 2.25 ng/ml, the Sensitivity was 56, 95, and 72 respectively, Specificity was 68, 64, and 70 respectively. Parallel combined testing for CA72-4 and CEA yielded a sensitivity of 95 and specificity of 70, denoting the importance of this combination in early detection of CRC cases.

Conclusions: Therefore, cases at high risk for development of colorectal cancer and who would undergo a screening program, the combination of CEA and CA72-4 may offer a simple and non-invasive screening test for the early detection of cancer development.

Keywords
Cancer Antigen (CA 242), CA 72-4, Colorectal cancer,