Comparative analysis of predictive biomarkers for therapeutical strategies in colorectal cancer.

BACKGROUND: Prognostic information regarding the risk of postoperative tumor recurrence defined by a profile of serological, morphological and/or molecular markers can have potential value, particularly for patients with colorectal carcinoma (CRC) of the International Union Against Cancer (UICC) stage II/III who may benefit from adjuvant chemotherapy after surgery.

METHODS: A retrospective study of 783 patients with CRC (UICC I-III) including a subgroup analysis of 116 subjects was conducted to determine preoperative serum carcinoembryonic antigen (CEA), carbohydrate antigen (CA) 19-9, and p53 serum levels. In addition, protein and gene expression of p53, CEA, and adenomatous polyposis coli (APC) was assessed in the tumors of those patients. The values of all serological, morphological, and molecular parameters were correlated with clinicopathological characteristics for their predictive value of tumor recurrence over a mean follow-up period of 32 +/- 6.2 months.

RESULTS: Serum CEA but not CA 19-9 or p53 was a significant prognostic factor for disease-free survival, along with UICC and T/N stage. When comparing elevated CEA, CA 19-9, and p53 serum levels with expression of the markers in the tumors, their overall expression was
found to be 61.3% in the serum versus 93.5% in the tumor in analyzed patients (n = 116). In particular, all patients in UICC stages I-III who demonstrated at least three elevated markers (CEA/CA 19-9/p53) in serum and/or in the tumor presented with tumor recurrence/metastases. CONCLUSION: Overall increased p53, CEA, and CA 19-9 serum levels and their marker expression in the tumor may be used at the time of primary tumor removal for defining patients at risk for tumor recurrence.