Correlation of CK-20-positive cells in peripheral venous blood with serum CEA levels in patients with colorectal carcinoma.

Tumor cell dissemination appears to be an early event in tumor progression, and tumor cells can be detected in peripheral venous blood at the time of the operation. Although cytokeratin 20 (CK-20) is not specifically expressed by colorectal carcinomas, it represents a widely used marker for the detection of colorectal tumor cells. We used the combination of density centrifugation and CK-20 real-time reverse transcription polymerase chain reaction to detect CK-20-positive cells in the peripheral venous blood of 37 patients with colorectal carcinoma. Detection rates were compared to serum levels of the tumor markers carcinoembryonic antigen (CEA), carbohydrate antigen CA 19-9, and cancer antigen CA 125. The prognostic impact was assessed by the overall survival and by univariate and multivariate analysis. Overall, CK-20-positive cells in peripheral venous blood were detected in 11 of 37 (29.7%) patients. CK-20-positive patients showed a significantly higher mean serum CEA level (90.3 ng/ml) than the 4.1 ng/ml found in the CK-20-negative group (p = 0.03). CEA levels also correlated with CK-20 copy numbers. No significant correlation was observed for CA 19-9 or CA 125. CK-20-negative patients showed a trend toward better survival (p = 0.08). In the univariate analysis, CA 19-9, CEA, tumor size, lymph node status, grading, the presence of distant
metastases, and resection status reached significant prognostic levels, whereas the detection of CK-20-positive cells showed only a prognostic trend ($p = 0.06$). Multivariate analysis failed to identify independent prognostic parameters. Here we report the correlation of CK-20-positive cells in peripheral venous blood with the serum CEA level of patients with colorectal cancer, which may represent a potential marker of the tumor load.