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Title: Type I and type III collagen metabolites and peritoneal cells in predicting the clinical outcome of epithelial ovarian cancer patients
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Abstract
Malignant tissue growth induces marked biochemical and structural changes in the extracellular matrix of the tumour and its surrounding tissues. In the present study, we evaluated the prognostic value of the serum concentration of the markers of synthesis of type I collagen (PICP, PINP) and type III collagen (PIIINP) as well as the marker of type I collagen degradation (ICTP) and compared them with the conventional indicators of prognosis (clinical stage, grade of differentiation, histological subtype, residual tumour load and the age of the patient). The prognostic value of peritoneal cytological findings at operation was an additional object in our studies.
High preoperative serum ICTP (>5.6µg/L) and PIIINP (>3.2µg/L) concentrations and a low PICP:PINP ratio (<2) correlated with poor prognosis in ovarian cancer in univariate analysis and in multivariate analysis when each variable was analyzed separately with the conventional factors. However, ICTP concentration was the only independent prognostic variable in multivariate analysis including PIIINP, PINP, ICTP and CA125. When analyzed with conventional prognostic factors (clinical stage, grade, residual tumour, preence of ascites, histology), clinical stage and ICTP were independent indicators of prognosis. In addition, malignant cells in the peritoneal fluid aspirate at primary operation, grade and the age of the patient predicted poor prognosis in multivariate analysis.
Postoperative serum ICTP concentration 9-months after the operation was the strongest prognostic factor as compared to the preoperative ICTP and CA125 values and clinical variables.
These results indicate that serum collagen metabolites, especially ICTP, are indicators of prognosis in epithelial ovarian cancer. The present ICTP-test does not detect the degradation products of immature type I collagen, the dominating form in ovarian cancer tissue. Therefore, the excess ICTP in invasive ovarian cancer might originate through the degradation of trivalently matured collagens in non-malignant tissues surrounding the malignancy. ICTP may thus be an indicator of invasive properties of the tumor and its determination opens up new perspective to predict the clinical outcome of ovarian cancer.

Keywords: ovarian neoplasms, carcinoma, prognosis, tumor markers, collagen metabolism, procollagen, peritoneal cytology, matrix metalloproteinase
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