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Angiogenesis and apoptosis-related protein (p53, bcl-2, and bax) expression versus response of gastric adenocarcinomas to paclitaxel and carboplatin chemotherapy.

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Abstract

The role of angiogenesis and apoptosis-related proteins in defining response to chemotherapy is poorly understood. We examined the microvessel density (MVD) and the expression of p53, bcl-2, and bax proteins in a series of 28 locally advanced gastric adenocarcinomas, treated with paclitaxel and carboplatin. A strong cytoplasmic reactivity in more than 10% of cancer cells was recorded in 25% of cases for p53 protein, and in 14% and 64% of cases for bcl-2 and bax proteins, respectively. Microvessel density was assigned in three categories: low (<35), medium (35-60), and high (>60). Tumors of medium MVD showed a significantly higher response rate compared with those of high or low MVD ($p = 0.01$ and 0.001, respectively), and prognosis was significantly better in this group of patients with medium MVD tumors ($p < 0.02$). Loss of bax protein expression was somewhat more frequent in tumors resistant to chemotherapy, but this difference was not of statistical significance. Nuclear p53 reactivity was associated with higher MVD ($p = 0.02$). The expression of p53 and bcl-2 did not influence the outcome of treatment. The present study suggests that although apoptosis-related proteins may have a role in defining response to taxanes, parameters related to tumors' vasculature, such as drug availability or angiogenic tissue regeneration, may be equally important.