

Angiogenesis vs. response after combined chemoradiotherapy of squamous cell head and neck cancer.

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Source

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Abstract

Oxygen/drug supply to cancer cells is an important factor defining response to radiotherapy and chemotherapy. Although tumor angiogenesis is considered an important prognostic marker, its role in the outcome of chemotherapy and radiotherapy is unknown. In the present study we examined the possible correlation of the degree of angiogenesis with response to cytotoxic therapy in locally advanced squamous cell head and neck cancer (HNC). Vascular grade (VG) was assessed immunohistochemically using the JC70 monoclonal antibody (MAb) in tumor specimens from 76 patients treated with platinum/5-fluorouracil (with or without methotrexate) induction chemotherapy (ICT) (n = 37) or concurrent chemoradiotherapy (CCRT) with cisplatin or carboplatin (n = 39). Seventeen of 76 analyzed patients had an overall microvessel score of < 11 (VG1), 25/76 of 11-30 (VG2), 16/76 of 31-50 (VG3) and 18/76 of > 50 (VG4). Complete response rate after ICT or after CCRT was higher in cases with an intermediate vascularization (VG2,3). Both local relapse-free and overall survival were significantly better in the VG2 group. Patients treated with CCRT had a better survival compared to those treated with ICT. This was mainly observed in VG1 tumors. Multivariate analysis showed that VG and treatment modality were independent prognostic factors for local relapse and survival. Intratumoral angiogenesis correlation with the cytotoxic therapy outcome is likely to follow a bell-shaped relation, the response being better in cases with an intermediate VG. This may be the consequence of 2 vasculature-dependent factors, i.e., the drug/oxygen availability and the ability of cancer cells to undergo rapid repopulation in optimally oxygenated conditions. Our pilot study stresses the importance of individualization of therapy according to VG.