

The expression of epidermal growth factor receptor results in a worse prognosis for patients with rectal cancer treated with preoperative radiotherapy: a multicenter, retrospective analysis

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Abstract

Background and purpose: Expression of epidermal growth factor receptor (EGFR) is observed in 50–70% of colorectal carcinoma and is associated with poor prognosis. The aim of this study was to determine the prognostic value of EGFR status before radiotherapy in a group of patients with locally advanced rectal cancer treated with preoperative radiotherapy.

Patients and methods: Eighty-seven patients were studied retrospectively. Treatment consisted of pelvic radiotherapy, in 50 patients with concomitant chemotherapy and surgical resection. Immunohistochemistry for EGFR was determined at the preradiation biopsy and in the resected specimens. Immunohistochemical analysis for EGFR expression was evaluated according to extension and staining intensity. We defined positive staining (EGFR positive), when extension was 5% or more.

Results: A total of 52 of 87 tumors showed EGFR positive status at biopsy (60%) and EGFR expression was associated neither with clinical tumor stage nor with clinical nodal stage. EGFR positive expression was linked to a lack of pathologic complete response to preoperative radiotherapy ($P=0.006$). Disease-free survival was lower among patients with EGFR positive status before radiotherapy ($P=0.003$). In a multivariate analysis EGFR expression at biopsy was a statistically significant predictor of disease-free survival, $RR=2.88$ (1.1–7.8), $P=0.036$.

Conclusions: EGFR is expressed in a significant number of rectal tumors. EGFR-positive expression before radiotherapy is an indicator for poor response and low disease-free survival.

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