Aim of the study: The aim of this retrospective study was to determine the prognostic impact of epidermal growth factor receptor (EGFR) expression changes during neoadjuvant chemoradiotherapy in patients with locally advanced rectal cancer.

Material and methods:50 patients with with locally advanced rectal cancer were evaluated. All the patients were administered the total dose of 44 Gy. Capecitabine has been concomitantly administered in the dose 825 mg/m2 in two daily oral administrations. Surgery was indicated 4-8 weeks from the chemoradiotherapy completion. EGFR expression in the pretreatment biopsies and in the resected specimens was assessed with immunohistochemistry.

Results:All of 50 patients received radiotherapy without interruption up to the total planned dose. In 30 patients sphincter-saving surgery was performed, 20 patients underwent amputation of the rectum. Downstaging was described in 30 patients. 4 patients have had complete pathologic remission. 26 patients have had partial remission, the disease was stable in 15 patients. Progression was reported in 5 patients. The median disease-free survival was 64.9 months, median overall survival was 76.4 months. Increased EGFR expression was found in 12 patients (26,1 %). A statistically significantly shorter overall survival ($p < 0.0001$) and disease-free survival ($p < 0.0001$) was found in patients with increased expression of EGFR compared with patients where no increase in the expression of EGFR during neoadjuvant chemoradiotherapy was observed.

Conclusions: The overexpression of EGFR during neoadjuvant chemoradiotherapy for locally advanced rectal adenokarcinoma associated with significant shorter overall survival and disease free survival.