Introduction: COX-2 is considered to play an important role in colorectal carcinogenesis and its overexpression may have prognostic significance.

Methods: A total of fifty-three consecutive patients (M/F: 34/19, Mean Age: 60y, Range: 34-76y) with CRC (26 rectal, 27 colon) who underwent a surgical treatment in the Thessaloniki Cancer Hospital ‘Theagenio’, were included in the study. A colonoscopy with biopsies was performed in all patients before the surgical treatment.

The COX-2 expression was examined in cancer tissue and the adjacent normal mucosa of the surgical specimens. Immunohistochemical analysis of formalin-fixed, paraffin embedded specimens was performed, using a COX-2 monoclonal antibody. The COX-2 expression was evaluated by grading both staining extension (0-100%) and staining intensity (0-3).

Results: The analysis of the results showed COX-2 overexpression in 90.6% (48/53) of examined tumors. No COX-2 expression was found in the adjacent normal mucosa. Metastatic disease was diagnosed in 8 patients during the follow-up period. Thirteen patients (24.5%) were died (Mean time of follow-up: 51.4 ± 4.4 months, Range: 44-58). The mean survival time was 42.8 ± 16.3 months (Range: 2-58 months). No correlation was found between COX-2 expression and patients’ characteristics, tumor characteristics (location, differentiation, infiltration) and tumor recurrence or metastasis. Significant COX-2 expression was found in tumors without lymph-node involvement (p = 0.01) and TNM stage I-II (p = 0.02). The percentage of cases without metastasis (81.3%) and the mortality rate (76.9%) were higher in COX-2 (+) group of patients, but without significance. In the multivariate analysis, COX-2 expression was.

Conclusion: COX-2 expression was found in the majority of cases, without being an independent prognostic factor of survival. The results suggest a possible COX-2 involvement in the progression of malignancy, mainly in the intermediate stage and then in the advanced stage.