

## TROSATIVE STRESS PARAMETERS IN COLON CANCER TUMOR, ADJACENT AND HEALTHY TISSUE

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Colorectal cancer is one of the most frequent human malignant diseases and one of the most common causes of malignant diseases death. Oxidative and nitrosative stress have an important role in cancer initiation and propagation. That is why this study is focused on the determination of oxidative and nitrosative stress markers in tumor, adjacent and health tissue, which are important for the estimation of tumor proliferative and angiogenic potential. The study encompassed 50 patients who underwent surgery due to colorectal cancer. In the tissue samples from resected colon preparation (tumor, adjacent and healthy tissue, at least 10 cm distant from tumor), oxidative and nitrosative stress markers, malondialdehyde (MDA) and nitric oxide (NO) were determined. The obtained results prove the presence of oxidative stress in tumor tissue. Highly significantly ( $p < 0.001$ ) increased MDA concentrations in both tumor and adjacent tissue ( $12.43 \pm 9.39$  and  $11.57 \pm 5.56$  nmol/mg proteins) compared to healthy one ( $7.25 \pm 5.52$ ) reflect higher tumor aggressiveness and metastatic capacity. Higher NO concentrations in adjacent tissue ( $85.100 \pm 37.972$  nmol/mg prot.) compared to the tumor one ( $58.608 \pm 22.789$ ) point out high angiogenic potential of tumor surrounding tissue, which could have the clinical importance in the assessment of tumor invasiveness and the probability of local recurrence. In conclusion, the determination of the intensity of reactive oxygen and nitrogen species generation in tumor and adjacent colon tissue of patients with colorectal carcinoma could be useful in the estimation of the cancer invasive and metastatic capacity related to the prognosis of the disease and the choice of adjuvant therapy. *Acta Medica Medianae 2016;55(1):44-50.*

**Key words:** colon cancer, oxidative stress, nitrosative stress, nitric oxide