

PARAMETERS OF OXIDATIVE STRESS IN COLON CANCER TISSUE

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Colorectal cancer is one of the most frequent neoplastic diseases in the human population, and one of the most frequent causes of death. Reactive oxygen species (ROS) are involved in the process of cancer initiation and progression. It is known that ROS are formed in excess in chronic diseases of the gastrointestinal tract, but the precise mechanisms of oxidative stress being induced in cancer cells and the role of ROS in colorectal cancer progression are still not exactly understood.

Tumor tissue specimens as well the healthy colon tissue and the tissue surrounding the tumor were obtained from 50 primary colorectal cancers. The concentration of TBARS in the homogenate was determined by spectrophotometric method by Andreeva et al. AOPP concentrations in the tissue was measured by the spectrophotometric method by Vitko et al. Catalase activity in plasma was determined by spectrophotometric method by Goth.

TBARS and AOPP levels were significantly higher in the tumor tissue compared to the control healthy tissue ($p < 0.001$). Also, the tissue surrounding the tumor had higher concentration of TBARS and AOPP compared to the control healthy tissue ($p < 0.001$). The activity of catalase in tumor tissue was significantly lower in comparison to the healthy colon tissue ($p < 0.001$).

This study defines that colorectal carcinogenesis is associated with serious oxidative stress and proves the involvement of lipid peroxidation and oxidative modification of proteins in malignant process and the spread of lipid peroxidation from malignant into the adjacent non-malignant colon tissue. The results also show a lower activity of catalase confirming the relevance of oxidative-antioxidative disorders. *Acta Medica Medianae* 2016;55(3):32-37.

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