

278. THE PARTICULARITIES OF OXIDATIVE STRESS IN CANCER.

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Introduction: Humanity is facing a critical public health problem: the cancer, and in the next decade is likely to become the most important global disease. By 2020, it is estimated that cancer mortality will exceed the mortality of cardiovascular diseases.

Daily every cell of our body is the target of bullies feared: pollutants, cigarette smoke, ultraviolet radiation, ultrasound, hormones (estrogens) and not least free radicals (RL).

The study of the consequences of RL oxygen formation is one of the topics of great interest of Biochemistry and Medicine, especially the consequences in cancer formation RL. Oxidative stress (OS) is closely related to all aspects of cancer, the tumor carcinogenicity state, from prevention to treatment. A statistics presented recently by the World Health Organization indicates a correlation worrying between the degree of industrial development of society and the incidence of diseases circulatory, neuro-degenerative diseases and cancers, diseases causing death, which are a direct result of complex phenomena gathered under the name OS.

Materials and Methods: We conducted an analysis of more than 20 international articles obtained by searching the database MEDLINE, PubMed, EBSCO, HINARI, published from 2000 till 2015.

Discussion Results: So, there is a permanent cancer called chronic OS. It is known that OS and RL are mutagens. These produce mutations, cytotoxic and modify gene expression. Mutations inducing oxidant factors can initiate carcinogenesis, whereas oxidative modifications of genetic material can lead to progression of benign tumors with malignant transformation.

The human body is constantly under the action of OS, which may be of exogenous origin (e.g. UVR), as well as endogenous (cellular level involving mitochondria). So, when the body exceeds the capacity of the redox system, genetic mutations can generate an intracellular signal transduction of transcription factors which may be affected directly or through antioxidants, leading to carcinogenicity. One of the mechanisms by which anticancer agents and radiotherapy exert their effects is apoptosis of cancer cells. OS problem is also involved in resistance to these treatments. Many field studies have shown that treatment with chemotherapy raises the OS in patients who receive them therefore represents producers of OS antineoplastic agents in this group of patients in anticancer chemotherapy.

Conclusion: OS chronic cellular level can stimulate or cancer progression or metastasis of its power, and can make some anticancer drug treatments be less effective.

Key Words: Oxidative stress, cancer, inflammation, chemotherapy.