THEORY OF CARCINOGENESIS

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Introduction. Carcinogenesis is a complex multi-stage process leading to tumor reorganization of normal body cells. As of today the problem of cancer occurrence has not been finally solved, as modern science develops new points of view on carcinogenesis occur.

Aim. The purpose of this work was to review existing theories of the origin of cancer.

Materials and methods. To achieve this goal, an analysis of the literature data and a generalization of obtained information was carried out.

Results and discussion. The main and generally accepted is the mutational theory, according to which in most cases, cancer develops from one tumor cell due to the accumulation of mutations in the genetic apparatus of cells.

The theory of chemical carcinogenesis considers chemical factors of the environment (carcinogen) as the main cause of cellular mutations leading to tumor development. Carcinogens are divided into two main groups: genotoxic carcinogens, which react directly with DNA, and epigenetic, causing changes in DNA and chromatin without changing the very DNA sequence.

The main postulate of the viral cancer theory is the assertion that the genome of a cell can be disrupted by the activation of an integrated DNA virus, which causes uncontrolled cell division. Currently, several types of viruses that cause malignant tumors have been detected in humans: human papilloma virus (provokes the development of cervical cancer), hepatitis B virus (leading to hepatocellular liver cancer), Epstein-Barr virus from the group of herpes viruses (Burkitt's lymphoma).

The theory of irritation is based on the fact that frequent traumatization of tissues accelerates the processes of cell division and can cause tumor growth. It is known that moles, which are often subjected to friction clothing, shaving injuries, etc., may eventually become malignant.

According to the immune theory, the root cause of cancer is a violation of the body's defense mechanisms for their detection and destruction. This is confirmed by the high incidence of tumors in patients receiving immunosuppressants. Based on this theory, one can explain why the risk of developing cancer progressively increases with age.

Conclusions. Thus, at present, there are a number of interrelated concepts that explain the mechanisms of tumor growth.