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The role of inflammatory mediators in carcinogenesis

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ABSTRACT

Introduction: The process of carcinogenesis or tumor progression occurs slowly, which may take years until the formation of a visible tumor or an accumulation of abnormal, undifferentiated progenitor cells. Inflammation is a protective response of the body triggered by noxious stimuli. Studies report that the relationship between cancer and inflammation consists of the presence of inflammatory cells and inflammatory mediators in tumor tissues and angiogenesis. The inflammatory state contributes to tumor development through mechanisms such as: induction of genomic instability, stimulation of proliferation and resistance to apoptosis and induction of tumor angiogenesis. **Objective:** Introduce the most recent on the subject in the academic debate. **Methodology:** A bibliographical survey was carried out of the main academic journals with articles from the last five years. **Results and Discussion:** Studies have shown the frequent appearance of tumors in sites of chronic inflammation, besides the presence of inflammatory cells and mediators in tumor tissues, such as chemokines, cytokines and cyclooxygenase (COX), an enzyme responsible for the formation of important mediators including prostaglandins. Chemokine receptors are primarily responsible for leukocyte migration during inflammation and carcinogenesis, directly involved in the invasion, motility and survival of tumor cells. In relation to cytokines, TNF- α (tumor necrosis factor) stimulates growth. The presence of elevated serum levels of IL-6 in cancer patients was also observed. At the enzyme level, COX-2 overexpression is associated with increased angiogenesis, decreased apoptosis and immunosuppression in a variety of tumors. **Conclusion:** The cellular mediators of the inflammatory process are important agents in tumor tissues. These inflammatory changes act on cell proliferation and activation of angiogenesis, inhibiting adaptive immune responses.

Keywords: Cancer; Inflammation; Inflammatory mediators

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