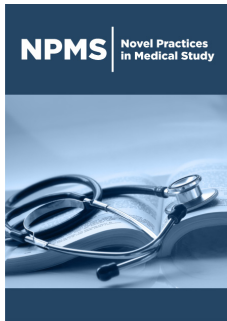


Cancer Immunotherapy – A Brief View

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Opinion

Cancer is a complex disease with uncontrolled, progressive, persistent cellular proliferation, cell survival after removal of stimulating factors. Advanced cancer treatments such as surgery, chemotherapy, and radiotherapy failed to improve the prognosis with increasing morbidity and decreasing survival rate. There is no treatment till now to kill only cancer cells without killing normal cells. A Noble laureate Albert Szent-Gyorgyi, a Hungarian biochemist said in his book introduction to sub molecular biology “Cancer cells work exactly like normal cells; I do not know ant treatment which can kill only cancer cells without killing normal cells”. Advanced latest novel treatment of cancer is cancer immunotherapy safe and effective against cancer, inexpensive. Most cancers more than 90% of all cancers are due to external environmental factors such as tobacco, alcohol, viruses, and chemical agents. These external environmental factors activate immune cells such as neutrophils, macrophages, mast cells, monocytes release inflammatory mediators such as cytokines, chemokines, proteolytic enzymes activate NF-kB a key transcription factor, dysregulated constitutive NF-Kb, a key transcription factor activation involved in tumor initiation, tumor promotion and tumor progression by cell proliferation (Cyclin D,E), cell survival (BCL-2,BCL-XI), angiogenesis (IL-8,COX-2,VEGF,Hif-1 α), genomic instability (ROS,RNS,Arginase1,AID) invasion and metastasis (Mmp’s 2,9,UPA (Urokinase plasminogen activator). Chronic inflammation is considered as a 7th hall mark of cancer. Cytokines are the molecular messenger secreted by immune cells such as macrophages, neutrophils, NK (Natural killer) cells, T cells. Cytokines such as IL-2, IL-12, IFN- γ act as anti-tumor and anti-inflammatory activity, whereas IL-4, IL-5, IL-13, IL-10, TGF- β cytokines are involved in immunomodulatory and tumor progression. Utilizing the antitumor and anti-inflammatory cytokines such as IL-2, IL-12 and IFN- γ to fight against cancer will be useful for holistic safe, effective and inexpensive management of patients with better prognosis and survival rate.