Influence of tumors on protective anti-tumor immunity and the effects of irradiation.

Abstract:

Innate and adaptive immunity plays important roles in the development and progression of cancer and it is becoming apparent that tumors can influence the induction of potentially protective responses in a number of ways. The prevalence of immunoregulatory T cell populations in the circulation and tumors of patients with cancer is increased and the presence of these cells appears to present a major barrier to the induction of tumor immunity. One aspect of tumor-mediated immunoregulation which has received comparatively little attention is that which is directed toward natural killer (NK) cells, although evidence that the phenotype and function of NK cell populations are modified in patients with cancer is accumulating. Although the precise mechanisms underlying these localized and systemic immunoregulatory effects remain unclear, tumor-derived factors appear, in part at least, to be involved. The effects could be manifested by an altered function and/or via an influence on the migratory properties of individual cell subsets. A better insight into endogenous immunoregulatory mechanisms and the capacity of tumors to modify the phenotype and function of innate and adaptive immune cells might assist the development of new immunotherapeutic approaches and improve the management of patients with cancer. This article reviews current knowledge relating to the
influence of tumors on protective anti-tumor immunity and considers the potential influence that radiation-induced effects might have on the prevalence, phenotype, and function of innate and adaptive immune cells in patients with cancer.

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