

Can alternative treatments induce immune surveillance over cancer in man?

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Introduction

The existence of a surveillance role for the normal immune system (NIS) in regulating the growth and spread of cancer in man has been hotly debated since the first observations of spontaneous tumor regressions were noted in experimental animals (1). Since that time the concept that an immune surveillance over cancer has persisted in spite of the fact, that 90% of the most common cancers, carcinomas, occurred in the presence of a fully functioning NIS in the host (2) and there is no evidence of an increase in the frequency of the occurrence of carcinomas in patients with severely decreased immune function (3).

Most of the alternative medicine (AM) that cancer patients hear about comes via media exposure, supermarket tabloid ads, proponents books or advice from well meaning, if misinformed friends and relatives. Almost without exception, the proponents of AM assure their patients that humans have an innate "healing system" which fights cancer "naturally" and that this "all natural defense" is the NIS. When the NIS functions normally, they say, it prevents cancer by recognizing, attacking and destroying the tumor cells as they appear in the body. They say that a patient gets cancer when the NIS is somehow "damaged". Patients are told that the AM they are being offered will detoxify, stimulate, modulate, rejuvenate, augment or reactivate the "defective" NIS and that "natural healing" of the cancer will result. The treatments said to do this include special diets, supplementation with vitamins and minerals, pancreatic enzymes, Chinese herbal teas, raw animal tissues, digestive enzymes, uncooked organic fruits and vegetables, "vaccines", blood serum fractions, high colonics, urine extracts, coffee enemas, and chemicals like laetrile, ozone, hydrazine sulfate and hydrogen peroxide. Some alternativists call them themselves "Mind-Body healers" and allege that they can induce healing through a "spiritual" stimulation of the NIS or by manually smoothing out the patients "uneven" body energy field, thereby bringing them into balance with the energy of the Universe (4).

The reality of immune surveillance against cancer

The idea that the NIS “watches out for and defends against cancer” came about during the time that researchers were making an effort to unravel and define the very complex chain of reactions that make up this system (5). During this time, immunologists clearly and conclusively demonstrated that the most common cancers occurred and flourished in a host with a fully functional and competent immune system (6). In spite of this, alternativists continued to insist that the defective immune system was responsible for the occurrence of cancer.

The rationale for their approach was based on two assumptions: a) since cancer cells are constantly being produced in the body, a perpetual surveillance system must be in place to insure the survival of the species, and b) to carry out surveillance the NIS must recognize and be able to destroy each newly emergent cancer cell in the body (4).

The Normal Immune System (NIS)

It has been shown that while cancers that are associated with viral infections, arise rather quickly, the most common cancers develops when a single cell escapes from host control and goes through multiple mutation-like changes (7). These events take place over many years and result in a tissue (the tumor) whose growth is independent of normal homeostatic control. Though it is abnormal this tumor is still composed of cells which are “self”.

The NIS is programmed to recognize “non-self. Thus, it does not “see” the tumor (8). A response of the cells in the NIS does take place when foreign proteins, i.e. antigens from non-self target cells are presented to them by substances called major histocompatibility complexes (MHC). The hallmark of the NIS is its ability to respond to this presentation with great effectiveness. This occurs because NIS cells have biochemical properties that are uniquely suited to continuously generate a large variety of individual receptor molecules (immunoglobulins) and to select those that will be needed for further expression. Thus there is the production of a seemingly infinite variety of specific receptors on the immune system cells to which the foreign proteins will bind (9).

In spite of the enormous amount of information that we have amassed about the nature of the NIS and the mechanisms by which it acts, as of this date, immunotherapy still only holds the promise of being able to eliminate microscopic metastasis in patients. On occasion, patients with advanced cancer may be treated systemically with contact allergens, bacteria, and immunologic adjuvants with or without tumor cell antigens in the hope of stimulating some anticancer action by their functional NIS. But the infrequency of successful outcomes makes giving this kind of therapy a last resort (10).

Natural Immunity (NI)

The term “natural immunity” is used to describe an activity in the immune system for which no deliberate immunization by a foreign antigen has taken place (11,12). The NI reaction differs from that of the NIS’s response to protein determinants in that it is not dependent on the traditional transplantation antigens that are found in foreign (non-self) cells. The NI response is due to non-specific triggering of the activity of cells like natural killer cells, macrophages or polymorphs. During the past decade cells called Dendritic cells (DC) have been identified as part of the NI system (13, 14). DC are thought to be the sentinels of the immune system. They are produced in the bone marrow and are seeded into non-lymphoid tissues. DC capture and process exogenous antigens for presentation as peptide-MHC complexes at the cells surface. In doing this they are thought to facilitate the activation of the NK cells (15). The NI system acts on infectious organisms and against some antigens present in our food or in our intestinal flora. DC are presently being considered for use as adjuvants in immunization protocols for antiviral and anticancer immunity (16).

NIS and the mind

Alternative medical practitioners claim that the mind, spiritual harmony and moral integrity all promote “healing” by stimulating the activity of the NIS. Their literature asserts that virtually every psychological variable influences the surveillance function of the NIS (4). From this one might conclude that it is mainly the “unhappy, the asocial and the depressed who become ill when their thoughts mitigate the ravages of disease. But clinical studies show that most diseases strike blindly and progress inexorably in spite of all the concious efforts and desires of the patient to remain healthy .

As of this time, there is no single, valid measure of an individuals immun-competence. What we do have are a host of indices related in some complex way to a persons overall ability to resist a given disease. We have known for years that prolonged stress, fatigue, starvation, etc, can temporarily alter the level of some component of the NIS, but there is no evidence that the consequence of this is related to the prevention or the onset of cancer. Although it would be relatively easy to demonstrate when and if the mental state of an individual has influenced specific aspects of the NIS function, the alternativists who make this claim have never shown that the transient changes in levels of some NIS cells result in significant effects on the progress of the patients disease..

Summary

It is important to recognize that all the current arguments against an anticancer surveillance role for the NIS are based on evidence from research specifically designed to see if there was a correlation between the function of the NIS and spontaneous tumor development. In other words they were designed to show if there was an increased incidence of spontaneous tumors in the immune deficient hosts. This did not occur. Further, there are no reports in the scientific literature to support the contention that any AM operates through an established immunological mechanism. Regardless of the means used to evoke an antitumor response, all the evidence available from clinical and animal studies clearly shows that only after the attention of the NIS has been attracted by some external manipulation of its components, is there any recognition by NIS of the existence of the tumor (12). All the evidence amassed over the past 30 years provides a clear answer to the question, "Does any AM treatment stimulate the NIS and cause it to identify and destroy new cancer cells when they appear?" The answer clearly is NO!.

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