Cancer And Nutrition: Frequently Asked Questions

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Is iron dangerous in cancer?
Do I need to avoid iron supplementation?

High iron levels in the body are associated with increased free radical damage and oxidative stress. It is important to be cautious of high levels of iron in cancer patients, however, low levels of iron may be just as dangerous. 30%-90% of all cancer patients are thought to suffer from anaemia.[1] The causes are multifactorial and may occur either as a direct effect of the type of cancer or the treatment itself.[2] Some of the causes of anaemia in cancer patients are due to blood loss (i.e. tumour bleeding), haemolysis, bone marrow infiltration, hypersplenism, and nutrient deficiencies. However, in a high percentage of these patients malignant disease itself is the culprit. Anaemia was shown to result in cytokine-mediated failure of erythropoiesis. Immune system activation and the release of inflammatory mediators (tumour necrosis factor, interferon gamma, and interleukin-1) were clearly demonstrated to further the progression of cancer.[3] Prevalence seems to be especially high in uterine-cervical cancers, advanced multiple myeloma and cancers involving renal impairment. Anaemia also has a high prevalence and incidence in cancer patients receiving chemotherapy, causing fatigue in over 80%of these individuals, in turn delaying treatment. [4], [5] Finally, anaemia constitutes an independent prognostic factor for the survival in cancer patients (relative to the type of cancer).[6]

Some evidence suggests that increased body iron stores may increase the risk of certain cancers, i.e. colorectal cancer, possibly due to oxidation reactions. Researchers have demonstrated that luminal exposure to excessive iron may possibly increase the risk in combination with a high fat diet.[7]

Are soy proteins and isoflavones safe for women with breast cancer?

Some concern over the use of isoflavones in breast cancer has arisen over a possible detrimental effect due to some data from animal and in vivo studies suggesting that these compounds, particularly genistein, may stimulate the growth of oestrogen-sensitive cancers. This perception is due to the fact that phytoestrogens are structurally and functionally similar to mammalian oestrogens and also because they are able to bind to both oestrogen receptors (alpha and beta receptors).[8] Some studies state that no clear evidence exists that breast cancer development is influenced in any way by soy isoflavones / phytoestrogens. [9], [10], [11] Their positive effect, however, is supported by two recent meta-analyses. These concluded that soy intake may be associated with a small reduction in breast cancer risk due to isoflavones.[12], [13]

Soy protein isolate (SPI) was found to protect against cancer via the following mechanisms:

• An increase in mammary gland differentiation

• A reduction in the activation of pro-carcinogens to carcinogens

• Regulation of genes involved in signal transduction pathways influencing initiation, promotion and

progression [14]

• Altering endogenous oestrogen metabolism away from genotoxic metabolites and toward inactive metabolites (in postmenopausal women) [15]

• Inhibiting the binding of more potent estrogens by competing for oestrogen receptors, thereby reducing breast cancer risk [16]

High circulation levels of genistein in particular were found to be associated with reduced risk of breast cancer. [16]

Can I take nutritional supplements during chemotherapy?

Certain nutrients have been found to be particularly beneficial for support whilst a patient is undergoing chemotherapy. Nutrients may exert benefit by providing protection against detrimental side effects of chemotherapy, or by enhancing the actions of the chemotherapeutic drugs. As for timing of supplementation with chemotherapy, it is generally advised to discontinue supplementation (i.e. fish oils, CoQ10, lipoic acid) one day prior to chemotherapy. Liver support should be avoided on the actual day of chemotherapy, but may be given on the days in between. Some vitamin C (500mg) on the day of chemotherapy may be taken, as well as a small amount of digestive enzymes. Regular supplementation may be resumed two days after chemotherapy.

What is the optimal time to supplement with digestive enzymes?

Digestive enzymes are often prescribed to the cancer patient. There may be one or two reasons for prescription. The majority of cancer patients may experience digestive disturbances and decreased digestive function during treatment, therefore, supplementation of digestive enzymes with meals may be recommended. In this case, it is believed that small doses of digestive enzymes given with meals may be taken when the patient is undergoing chemotherapy or radiation. Some research indicates that proteolytic enzymes are not recommended for 2-3 days before or after surgery as they may increase the risk of bleeding.

Some practitioners utilise the “Enzyme Therapy” protocol, which offers the theory that the digestive enzymes will assist in breaking down the fibrin coating, which is formed by some types of tumours. In this case, Henry Osiecki recommends 1-2 tablets with each meal, plus 5-10 tablets between meals for a total of 20-30 tablets / day. Unfortunately there is limited research available on this enzyme therapy, however there is evidence that, in particular cancers (such as pancreatic cancer) high doses of pancreatic enzymes has led to significant increase in survival rate. [17]

In a 2005 study, the mixture of pancreatic enzymes; trypsin, chymotrypsin and amylase produced potent antimetastatic and antitumour effects in cellular, animal and human systems. [18] An animal study examined

the effect of a mixture of trypsin, chymotrypsin and papain on a metastasis model of B16 mice with melanoma. The enzyme mixture inhibited the growth of primary tumours with less tumour recurrence and reduced metastasis. [19]

The important point to remember is that if you want to consider high dose enzyme therapy, follow a specific protocol such as the 52 day protocol recommended by Henry in Cancer: A Nutritional/Biochemical Approach. It is also important to consider other treatment that the patient is undergoing, and be aware of conditions such as Tumour Lysis Syndrome, which has been known to occur when excessive aggressive therapy is used concurrently.

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