[IMAGE]

Vitamin D for Influenza

By Dr. James Meschino

Another flu season is here; what's your strategy this year? In 2009, many chose the vaccine route, particularly with the "swine flu" (H1N1) making front-page news on a near-daily basis. Whether you choose to get vaccinated or not, it's important to be aware of a simple, natural way you can help reduce your risk.

Every year the medical profession and government authorities encourage citizens in many developed countries to get immunized against the current form of influenza virus. This year is no different, particularly with the "dreaded" swine flu still on everyone's minds. While the decision to get vaccinated is an individual one with both pros and cons, consider that a natural approach, namely supplementation with specific nutrients such as vitamin D, can boost immune function and may play an important role in the prevention of respiratory tract infections.

Why Vitamin D?

In recent years, studies have shown that vitamin D is an important modulator of immune function. Some authorities suggest it has the potential to reduce the risk of life-threatening influenzas based on the initial observation that influenza normally strikes in countries during the colder (winter) months, when vitamin D production in the skin declines. This happens because the most generally available source of vitamin D is sunlight. Reduction in skin production of vitamin D due to reduced or no exposure to daily sunlight is accompanied by a decline in blood levels of vitamin D.

Vitamin D for Influenza - Copyright â Stock Photo / Register Mark Some vitamin D experts suggest adults should supplement with 2,000 IU vitamin D per day (especially during the winter) as a means to maintain more optimal vitamin D status in general, strengthen immune function and help reduce the risk of influenza and its invasion into the lung cavity. Other experts suggest dark-skinned individuals should supplement with 5,000 IU of vitamin D per day during the winter months to help ensure they attain blood vitamin D levels (25-hydroxycholecalciferol) at or above 50 ng/ml. (Melanin, the pigment that makes the skin darker, acts as a sunscreen, reducing vitamin D production in the skin upon exposure to solar radiation.)

How Vitamin D Affects Immunity

Most immune cells contain vitamin D receptors which allow vitamin D to enter the cells and exerts its effects on immune cell behavior. In this capacity, vitamin D has been shown to dramatically stimulate the expression of potent antimicrobial peptides. These peptides exist in white blood cells such as neutrophils, monocytes and natural killer cells, and the epithelial cells that line the respiratory tract, where they play a significant role in protecting the lung from infection.

Vitamin D influences both innate and adaptive immunity. The cells of the innate system recognize and respond to pathogens (infectious agents or germs) in a generic way, and the adaptive immune cells have the ability to recognize and remember specific pathogens. They, in turn, generate immunity by mounting stronger attacks each time the same pathogen is encountered. In simpler terms, vitamin D appears to make immune cells better able to fulfill their primary function - defense.

Adaptive immunity involves lymphocytes (a specific type of white blood cell) that are able to express a vast number of specific antigen receptors on their cell surface. Should the pathogen be reintroduced at a later point in time, these receptors are activated and the lymphocytes launch an assault against the pathogen. In adaptive immunity, all of the offspring of the activated cells inherit genes, encoding the same receptor specificity. These cells include the memory B cells and memory T cells that are the keys to long-lived specific immunity.

Vitamin D receptors are expressed in monocytes and in activated macrophages, dendritic cells, natural killer cells, and T and B cells. Activation of these receptors by vitamin D has been shown to increase the activity of natural killer cells and enhance the phagocytic activity of macrophages. (Phagocytes are white blood cells that protect the body by, for lack of a better word, "eating" harmful foreign particles, bacteria, etc.) Active vitamin D hormone also increases the production of cathelicidin, an antimicrobial peptide that is produced in macrophages. The release of cathelicidin is triggered by the presence of bacteria, viruses and fungi.

All of these influences enable the immune system to work in a highly efficient manner, reducing risk of infection and reducing severity of infections should they strike. These immune pathways are also important in preventing cancer. In fact, higher blood levels of vitamin D are associated with reduced risk of breast, prostate, colon and other cancers. Several intervention studies have shown that vitamin D supplementation is associated with a reduction in cancer incidence of approximately 50 percent and that supplementation of 2,000 IU per day slows the progression of localized prostate cancer in a high percentage of male subjects.

Vitamin D Deficiency

While optimum vitamin D status seems to protect against influenza and other conditions, vitamin D deficiency is associated with increased risk of infections, such as influenza and tuberculosis. In one study, volunteers inoculated with live attenuated influenza virus were more likely to develop fever and serological evidence of an immune response in the winter. Vitamin D deficiency also has been reported to predispose children to respiratory infections. Ultraviolet radiation (either from artificial sources or from sunlight) has been shown to reduce the incidence of viral respiratory infections. The same holds true for cod liver oil supplementation, which is a rich source of vitamin D.

Think Prevention

Vitamin D sun - Copyright â Stock Photo / Register Mark I believe it is important for health practitioners to establish patients' baseline vitamin D blood levels. Evidence strongly suggests that a level above 85 nmol/L is highly protective against osteoporosis, cancer, multiple sclerosis and various infectious processes. Vitamin D toxicity is a concern only when blood levels of vitamin D rise above 200 nmol/L. Recent research indicates that supplementation with 1,400 IU of vitamin D per day appears to be sufficient to raise vitamin D level to the 85 nmol/L level in most patients. And at the first sign of flu-like symptoms, one expert - based on personal experience and that of family members - suggests supplementing with 2,000 IU of vitamin D per kilogram of body weight for three consecutive days.

Anyone who's suffered through the flu knows that it's not only potentially dangerous; it can be downright miserable. Ask your doctor to assess your current vitamin D status and discuss the value of vitamin D supplementation, particularly during the flu season. Whatever your strategy, it won't eliminate your risk altogether, but why not do everything you can do *naturally* to protect yourself and your loved ones?

Boosting Immune Function: From A to Z

citrics - Copyright â Stock Photo / Register Mark Vitamin D isn't the only ally in the battle against influenza and other immune-related conditions. Supplementation with vitamin C, vitamin E, beta-carotene, selenium and zinc appears to boost immune function (even in elderly patients) and, in some studies, has reduced the incidence of respiratory infections. And studies have shown that concurrent supplementation with certain antioxidants can even enhance the protective effects of the influenza vaccine. As such, I recommend a high-potency multivitamin/mineral to virtually all adult patients that contains 1,000 mg of vitamin C, 400

IU of vitamin E (succinate), 100 mcg of selenium, 10,000 IU beta-carotene, 15 mg of zinc and a B-50 complex, among the list of all vitamins and minerals from "A to Z." Such a multivitamin/mineral should also include vitamin D, of course, which has received attention in recent studies for its powerful affect on immune function.

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