Medical Xpress

Health benefits, consequences of folic acid dependent on circumstances

April 1 2009

For the past several decades, evidence has shown that greater dietary intake of the B-vitamin, folate, offers protection against the development of certain common cancers and reduces neural tube defects in newborns, opening new avenues for public health interventions that have a great impact on health. However, folate's central role as an essential factor in DNA synthesis also means that abundant availability of the vitamin can enhance the development of pre-cancerous and cancerous tumors.

Further, the intake of folic acid that results from consuming foods that are voluntarily fortified (e.g.: ready-to-eat cereals) in combination with the additional intake received from mandatory fortification of flour means that supplementary intake of folic acid is unnecessary for many segments of the population, and may even present a risk. Nevertheless, the issue is a complicated one since women of child-bearing age seem to benefit from supplemental folic acid in regard to its protection against birth defects. In the April issue of the journal *Nutrition Reviews*, two new articles by Omar Dary, Ph.D., and Joel B. Mason, M.D., assess the conditions under which folic acid can be beneficial and harmful and contribute to guidelines for the healthful intake of folic acid as a complement to dietary folate.

The consequences of inadequate folate intake remain prevalent in many countries, even in industrial countries where specific interventions of folic acid have not been implemented. Moreover, there continues to be some concern—which, to date, lacks compelling scientific

evidence—that the synthetic form of the vitamin, folic acid, might have adverse effects that do not exist with natural sources of folate.

Under most circumstances, adequate intake of folate appears to assume the role of a protective agent against cancer, most notably colorectal cancer. However, in select circumstances in which an individual who harbors a pre-cancerous or cancerous tumor consumes too much folic acid, the additional amounts of folate may instead facilitate the promotion of cancer. In countries in which the fortification of flour with folic acid is working well, additional supplementation in the form of vitamin pills can lead to excessive intakes of the vitamin, which can then have undesirable adverse effects.

Thus, folate appears to assume different guises depending on the circumstances. The level of intake of this micronutrient that is safe for one person may be potentially harmful to another.

"These effects of folate on the risk of developing cancer have created a global dilemma in the efforts to institute nationwide folic acid fortification programs around the world," Mason notes.

Most individuals in the U.S. population are now folate-replete, so one consideration would be to reduce the doses of the vitamin that are present in most over-the-counter supplements. Many people receive sufficient amounts of folate through their diet.

Now that the supply of folic acid in the diet is much larger than it was prior to mandatory fortification, food policies may need to be adjusted to the current knowledge and the new circumstances.

"The design of cogent public health policies that effectively optimize health for many while presenting no or minimal risk to others, must often occur in the absence of complete information," Mason concludes.

"However, we are nevertheless obliged to deliberate with as much of an in-depth understanding as the existing science allows."

Source: Wiley (news : web)