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MEDICAL UPDATE MEMO
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**STUDY REPORTS POSSIBLE LINK
BETWEEN VITAMIN D AND REDUCED MS RISK**

SUMMARY

A new study in nurses suggests that those with higher vitamin D intake may have had a reduced risk of developing multiple sclerosis. The study included 187,563 women, including 173 with probable or definite MS, enrolled in the Nurses' Health Study, which regularly surveys female registered nurses in the United States. Women whose intake of vitamin D was greater than or equal to about 400 IU/day from supplements and food, or from supplements alone, had a 40% lower risk of developing MS than women who did not take vitamin D supplements. This study adds new information to ongoing research focused on a possible role for vitamin D in reducing the risk of developing MS. There is no information in this study to determine whether vitamin D affects the course of MS once it has begun. Further research is necessary to clarify these findings. The normal requirement for vitamin D is 200 to 400 IU daily for adults and adolescents from both food and vitamin supplement sources. Excessive intake of supplemental vitamin D can have serious, toxic effects.

DETAILS

A new study in nurses suggests that those with higher vitamin D intake may have had a reduced risk of developing multiple sclerosis. Cassandra Munger, MSc, and colleagues (Harvard School of Public Health, University of California at Irvine) reported their findings in the January 13, 2004 issue of *Neurology*.

The cause of multiple sclerosis, which involves immune attacks against the body's own brain and spinal cord tissues, is unknown. Worldwide, MS occurs more frequently in countries that are further away from the equator, such as Canada. It is thought that there may be genetic, infectious, and environmental factors that increase or decrease an individual's risk of developing MS. One of several possible "protective" factors which are being explored is the increased sunlight exposure in areas closer to the equator and the resulting increase in the body's production of vitamin D.

Vitamin D is available not only through sun exposure but also from nutritional sources and vitamin supplementation. In general, vitamin D helps the body use calcium. In addition, immune cells have been shown to be influenced by vitamin D, and preliminary research suggests that vitamin D can alter immune attacks in mice with MS-like disease. To investigate the relation between vitamin D levels and the risk for developing MS, the researchers used the database from the Nurses' Health Study I and Nurses Health Study II, which regularly surveys female registered nurses about their history of diseases and lifestyles.

For this study, the investigators focused on dietary assessments from 187,563 of the participants. The study included 173 women diagnosed with probable or definite MS after their enrollment in the Study (between the ages of 30-55 for NHS I or 25-42 for NHS II). Vitamin D intake was determined through the Nurses' Health Study questionnaire and four one-week diet records, which included queries about diet and use of dietary supplements. Blood levels of vitamin D were examined, and analyses were performed to determine other factors that might affect the results, such as latitude of the subject's birthplace and smoking (members of this research group reported an increased risk of MS among nurses who smoked in the October 28, 2003 issue of *Neurology*).

Results

Women whose intake of vitamin D was greater than or equal to about 400 IU/day (the amount usually contained in multivitamin supplements), from either supplements – mostly multivitamins – and food, or from supplements alone, had a 40% lower risk of developing MS than those women who did not take vitamin D supplements. No reduced risks were found for vitamin D intake from food alone. Further analyses of smoking habits and birthplace did not affect these results. There is no information in this study to determine whether vitamin D affects the course of MS once it has begun.

Importantly, vitamin D intake was strongly associated with intake of other components of multivitamins, including vitamins A and E and folic acid. Therefore, it was not possible for the group to analyze the effects of vitamin D intake independently from these other vitamins. The authors note that the strongest evidence to date implicates vitamin D, and suggest that this vitamin seems to be the most likely candidate for association with reduced risk of MS.

This study adds new information to ongoing research focused on a possible role for vitamin D in reducing the risk of developing MS. Further research is necessary to clarify these findings, for example: What is the role of vitamin D versus other vitamins? Do these findings apply to men as well? Can vitamin D alter the course of existing MS?

Research in Canada

A number of studies are underway or planned to investigate possible association of sunlight exposure, vitamin D and MS. In Canada, a study by Dr. Dessa Sadovnick, University of British Columbia, and Dr. George Ebers, University of Oxford, is underway on the vitamin D status in people with MS and their families. They lead the world's largest MS genetic susceptibility study, which is funded by the MS Scientific Research Foundation.

The normal requirement for vitamin D is 200 to 400 IU daily for adults and adolescents from both food and vitamin supplement sources. This was the dosage taken by participants in the study. The recommended dosage of 400 to 800 IU to prevent loss of bone density is considered a safe therapeutic level. Excessive intake of supplemental vitamin D can have serious, toxic effects on the body, including excessive calcium levels in the blood, high blood pressure, nausea, anorexia, impaired kidney function and kidney damage.

[Adapted from Research/Clinical Update, National Multiple Sclerosis Society (USA)]

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