

Clinical Update

Vitamin D may protect against Crohn's disease

Low levels of vitamin D may increase the risk of developing Crohn's disease, suggest results of a new cell study from Canada.

(Journal of Biological Chemistry, January 2010)

The active form of vitamin D, known as 1,25-dihydroxyvitamin D (1,25D), is able to maintain proper functioning of the immune system that acts as the body's first defense against microbial invaders. This lack of defence may lead to an increased inflammatory response, which promotes the development of Crohn's, according to findings published in the *Journal of Biological Chemistry*.

Crohn's disease, which current affects approximately one in 400 people in the western world, is currently incurable so patients mainly seek to control the inflammation, relieve symptoms and prolong remission time.

"It's a defect in innate immune handling of intestinal bacteria that leads to an inflammatory response that may lead to an autoimmune condition," explained lead author, Professor John White from McGill.

Taking such an observation into account, researchers from McGill University and the Université de Montréal looked at the effects of vitamin D on beta defensin 2 gene, which plays a key role in the production of antimicrobial proteins, and the NOD2 gene, which alerts cells to the presence of invading microbes. Both genes have been linked to Crohn's disease.

The researchers found that if NOD2 is deficient or defective, it cannot combat invaders in the intestinal tract, and that 1,25-dihydroxyvitamin D was important for switching on the genes to help reduce the risk of Crohn's.

"There has been some debate as to whether vitamin D deficiency plays a causative role in Crohn's disease or is merely a consequence of intestinal malabsorption," wrote the researchers. *"Our observation that 1,25D signaling is a direct inducer of NOD2 expression argues strongly that vitamin D insufficiency/deficiency does play a causative role in the prevalence of Crohn's disease.*

"The genetics of Crohn's disease demonstrate that NOD2 insufficiency contributes to development of the disease," they added. White added that a promising result of their cell study was that it could be quickly put to the test. *"Siblings of patients with Crohn's disease that haven't yet developed the disease might be well advised to make sure they're vitamin D sufficient. It's something that's easy to do, because they can simply go to a pharmacy and buy Vitamin D supplements. The vast majority of people would be candidates for Vitamin D,"* he added.

Data on D

Vitamin D refers to two biologically inactive precursors - D3, also known as cholecalciferol, and D2, also known as ergocalciferol. The former, produced in the skin on exposure to UVB radiation (290 to 320 nm), is said to be more bioactive.

Both D3 and D2 precursors are hydroxylated in the liver and kidneys to form 25-hydroxyvitamin D (25(OH)D), the non-active 'storage' form, and 1,25-dihydroxyvitamin D (1,25(OH)2D), the biologically active form that is tightly controlled by the body.

While our bodies do manufacture vitamin D on exposure to sunshine, the levels in some northern countries are so weak during the winter months that our body makes no vitamin D at all, meaning that dietary supplements and fortified foods are seen by many as the best way to boost intakes of vitamin D.

Source: www.nutraingredients.com

