Vitamin D insufficiency and chronic diseases: Hype and reality.


Source

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Abstract

In recent years an increasing number of observational studies have suggested that a low vitamin D status contributes to the development of all sorts of chronic diseases. In reality, however, studies that had been adequately controlled for confounding factors ruled out any link between vitamin D insufficiency and, for example, metabolic disorders, arterial hypertension, multiple sclerosis or cognitive dysfunction.

Furthermore, a role of vitamin D insufficiency in autoimmune diseases is evident only in animal models but has not yet been established in humans. In respect to many malignancies, vitamin D insufficiency is only one out of many risk factors and its specific impact on disease incidence has never been assessed. There is convincing evidence, however, that vitamin D insufficiency is a major risk factor for osteoporosis, colorectal and breast cancer as well as for cardiovascular disease and mortality. However, it is debatable that circulating 25-hydroxyvitamin D concentrations of 100-150 nmol l(-1) are required for optimal health outcomes. These are overestimates which would afford to raise vitamin D intake to 4000 IU day(-1). In reality, high doses of vitamin D can cause serious health problems because of the U-shaped dose-response relationships that exist in some cases. Data from large cohort studies clearly indicate that serum 25-(OH)D concentrations around 50 nmol l(-1) are sufficient to minimize the risk of osteoporotic fractures, colorectal and breast cancer, and cardiovascular mortality. The fact that the risk-reducing potential of vitamin D depends on adequate calcium nutrition is widely ignored. I here summarize the evidence that efficient disease prevention does not require intake of more vitamin D and calcium than currently recommended for maintaining optimal bone health.

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