Is Vitamin D Protective Against Colon Cancer?

Vitamin D levels are inversely associated with risk

Lately, there has been increased attention towards colon cancer in individuals who are younger. As a result, several organizations are now suggesting that screening colonoscopies should be done at the age of 45 instead of 50. To minimize the risk, there are certain measures we can take such as consuming an adequate amount of vegetables, fruits, and fiber, cutting back on red meat (especially processed meats), engaging in physical activity, managing weight, abstaining from smoking, and limiting alcohol consumption. Nonetheless, is there anything else that may contribute to reducing the risk? This study examines a cost-effective supplement to determine if it could provide any benefits.

Abstract

- Background & Aims: The role of circulating 25-hydroxyvitamin D (25(OH)D) in the prevention of early-onset colorectal cancer (CRC) in young adults aged <50 years is uncertain. We evaluated the age-stratified associations (<50 vs ≥50 years) between circulating 25(OH)D levels and the risk of CRC in a large sample of Korean adults.
- Methods: Our cohort study included 236,382 participants (mean age, 38.0 [standard deviation, 9.0] years) who underwent a comprehensive health examination, including measurement of serum 25(OH)D levels. Serum 25(OH)D levels were categorized as <10, 10 to 20, and ≥20 ng/mL. CRC, along with the histologic subtype, site, and invasiveness, was ascertained through linkage with the national cancer registry. Cox proportional hazard models were used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for incident CRC according to the serum 25(OH)D status, with adjustment for potential confounders.
- Results: During the 1,393,741 person-years of follow-up (median, 6.5 years; interquartile range, 4.5–7.5 years), 341 participants developed CRC (incidence rate, 19.2 per 105 person-years). Among young individuals aged <50 years, serum 25(OH)D levels were inversely associated with the risk of incident CRC with HRs (95% CIs) of 0.61 (0.43–0.86) and 0.41 (0.27–0.63) for 25(OH)D 10 to 19 ng/mL and ≥20 ng/mL, respectively, with respect to the reference (<10 ng/mL) (P for trend <.001, time-dependent model). Significant associations were evident for adenocarcinoma, colon cancer, and invasive cancers. For those aged ≥50 years, associations were similar, although slightly attenuated compared with younger individuals.
- Conclusions: Serum 25(OH)D levels may have beneficial associations with the risk of developing CRC for both early-onset and late-onset disease.

This retrospective cohort study followed 236,382 people over a median of 6.5 years to examine the association between vitamin D levels in the blood and the risk of colorectal cancer. They found that people with low vitamin D levels (below 20 mg/mL) had an increased risk of developing colon cancer. The risk declined with higher levels of vitamin D. In people under age 50, the reduction was 59% when comparing the group that was over 20 ng/mL vs. under 10 ng/mL. The effect was still there for people over age 50 but wasn't as strong. This is a well-done study since the vitamin D level was measured in the blood, rather than estimated from a nutritional survey as many studies do. Vitamin D has been linked to lower cancer deaths in general. However, most studies have not shown a difference in cancer incidence, only in deaths. This study showed a reduction in the incidence of colon cancer which is what we want – to never develop cancer.

Vitamin D helps to regulate over 1000 genes which may be why it can help reduce colon cancers. If the level is very low, vitamin D can't regulate the gene that causes the cancer. This is a compelling study and certainly taking a vitamin D supplement makes a lot of sense. The good news is that for people who don't like to take pills, vitamin D can be taken in pulsed doses. This means you can take a few capsules of vitamin D once or twice a week and you should be covered. I generally recommend taking vitamin D in capsule or gel cap form for better absorption. Most people should take between 1000 IU (25 mcg) to 5000 IU (125 mcg) daily (or the equivalent once or twice a week). This appears to be especially important for people under age 50 who may be at increased risk of colon cancer.

Serum 25-hydroxyvitamin D levels and risk of colorectal cancer: an age-stratified analysis. *Gastroenterology* 2023 Jul 08;[EPub Ahead of Print], Y Kim, Y Chang, Y Cho, J Chang, K Kim, DI Park, SK Park, HK Joh, MK Kim, C Kim, SH Wild, CD Byrne, S Ryu