



Medical News Today



www.medicalnewstoday.com

NIH Conference On Cancer and Vitamin D

11 Oct 2004

The upcoming National Cancer Institute and National Institutes of Health conference on cancer and vitamin D promises to be an interesting match. Two very different groups of scientists will be slugging it out. In one corner will be the scientists who are trying to develop potentially profitable analogues of vitamin D to treat cancer. In the other corner will be vitamin D experts and other scientists who increasingly are saying plain old cheap vitamin D may be just as good (or even better) than the analogues to help fight cancer.

Most of the vitamin D heavyweights will be in attendance (Michael Holick, Robert Heaney, Tony Norman and Reinhold Vieth) and they should help contradict any misstatements about vitamin D physiology. Last years NIH conference on vitamin D produced some factual errors late in the day (such as the statement that no breast cancer cells can activate vitamin D). We hope the heavyweights stay around long enough to correct such mistakes. Registration is free thanks to the generous sponsors. <http://vitamind.ucr.edu/Cancer&CancerChemo.htm>

Professor Tony Norman of UC Riverside heads the Vitamin D Workshop which organized the conference. <http://vitamind.ucr.edu>. Dr. Norman has assembled an impressive lineup of speakers from around the world. We have asked him to have the more general, practical, and controversial speakers present on the first day so that lay people, general health care providers and the press can easily understand the content, while saving the highly technical speakers (whose crucial contributions will mainly interest other cancer scientists) for later in the conference. <http://vitamind.ucr.edu/ScientificProgram.htm>

The conference should address the question of whether cancer patients should take, in addition to standard cancer treatment, supplemental vitamin D. That is, should cancer patients fill their vitamin D tank? The answer is easy when asked another way, "Should cancer patients be treated for their vitamin D deficiency?" Apparently, the scientific and medical community thinks not. The reason I say that is because the medical literature contains no controlled study, no open study, no case series, not even a single case report, of a cancer patient ever being treated with physiological doses of vitamin D for their vitamin D deficiency while being followed for their cancer's progression. We know cancer patients are likely to be vitamin D deficient, being older, ill, inactive, and frequently hospitalized, etc.

Is it possible that no cancer patient has ever been treated with vitamin D in spite of the fact that the conference is all about the remarkable anticancer properties of vitamin D and its most active metabolite, calcitriol? Calcitriol (the most potent steroid hormone in the human body on a molar basis) is made in large quantities in the tissues of vitamin D replete individuals to fulfill the autocrine (within cell) and paracrine (around cell) functions of the hormone. I say large quantities because, unlike any other hormone, tissue calcitriol production

is directly proportional to the tissue concentration of its own building block in the blood [25(OH)D] and calcitriol, unlike any other hormone, does not appear to limit its own production in the tissues. Remember, we are not talking about serum calcitriol levels, which are tightly regulated by the kidney. We are talking about tissue levels.

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2185661
< br> Remember, like all steroid hormones, calcitriol works by demasking the genome. But no other hormone in the human body is as dependent on its structural raw material [25(OH)D] for the rate of its own tissue production as is calcitriol. This means the more raw material, the more calcitriol. Moreover, no other hormone in the tissues has been so arbitrarily, drastically, and recently reduced in humans as has tissue calcitriol has by modern day sun avoidance.

The entire NIH conference is geared towards exploiting the amazing anticancer properties of calcitriol and its analogues. Calcitriol promotes apoptosis (normal cell death) and forces normal cell differentiation, while inhibiting the blood supply and the spread of cancer cells. In short, calcitriol and its analogues should be ideal anticancer drugs. The problem is that intravenous calcitriol and its analogues cannot adequately get into the tissues without first causing hypercalcemia (high blood calcium). Plain old vitamin D does not have that problem because it does not cause hypercalcemia in dose below 20,000 units a day. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10232622

Instead, vitamin D is turned into 25(OH)D, which goes to the tissues where it is turned into calcitriol in direct proportion to blood levels of 25(OH)D. The real question is would all that extra tissue calcitriol help fight cancer? In fact, there is a growing consensus among research scientists that it would do just that. In the last few years, more and more cancer researchers are reporting that plain old cheap vitamin D may help fight cancer.

Let's start with colon cancer. Dr. Cross and colleagues, at the University of Vienna Medical School, found, that neoplastic colon cancer cells have a "high intrinsic capacity to generate" activated vitamin D, a capacity that is not lost until the cancer is well advanced. They concluded that adequate vitamin D nutrition should maintain appropriate levels of activated vitamin D which "could be a therapeutic rationale for the prevention and possibly treatment of colorectal cancers." **That's right, plain old cheap vitamin D may help colon cancer.** http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15208365

Dr. Holt and colleagues, at Columbia School of Medicine, found "significant correlations between serum 25 (OH)D levels and colonic epithelial cell proliferative kinetics," concluding that "local autocrine or paracrine control" of vitamin D favorably "alters colonic cell proliferation." **That's right, plain old cheap vitamin D may help colon cancer.** http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11815408

Dr. Bises and colleagues at the Medical University of Vienna, presented findings that suggested the "autocrine/ paracrine antimetabolic activity of 1,25-dihydroxyvitamin D(3) could prevent intestinal tumor formation and progression." **That's right, plain old cheap vitamin D may help colon cancer.** http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15208365

Dr. Robsahm and colleagues at the Cancer Registry of Norway concluded that high levels of vitamin D "at the time of diagnosis, and thus, during cancer treatment, may improve prognosis" of colon cancer. **That's right, plain old cheap vitamin D may help colon cancer.** http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15017127

What about prostate cancer? Dr. Schwartz and colleagues at the University of Miami School of Medicine, reported that their data "suggest a potential role for 25(OH)D in the chemoprevention of invasive prostate

cancer.” **That's right, plain old cheap vitamin D may help prostate cancer.**

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9610788

< br> Dr. Barreto and colleagues at Wake Forest University School of Medicine reported that “25-OH-D3, which previously was thought to have little biological activity, can become a potent antiproliferative hormone for prostatic cells that express 1-alpha-hydroxylase. Because 25-OH-D3 exhibits similar potency to 1,25(OH)2D3 but is less calcemic, 25-OH-D3 may offer a safer option than 1,25(OH)2D3 for prostate cancer therapy.”

That's right, plain old cheap vitamin D may help prostate cancer.

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10750664

Dr. Chen and Dr. Holick of Boston University School of Medicine reported evidence indicated that “adequate vitamin D nutrition should be maintained, not only for bone health in men and women, but because it might decrease the risk of prostate cancer and mitigate metastatic activity should it develop.” **That's right, plain old cheap vitamin D may help prostate cancer.**

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14580762

Dr. Young and colleagues of Boston University School of Medicine reported that “vitamin D or 25(OH)D may be useful as chemopreventive agents for prostate cancer because their administration should cause an increased synthesis of 1 alpha,25(OH)(2)D within prostate cells.” **That's right, plain old cheap vitamin D may help prostate cancer.**

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14729578

What about cervical cancer? Dr. Friedrich and colleagues at the University of Saarland in Germany reported that “normal cervical and cervical cancer cells seem to be able to synthesize 1alpha, 25(OH)D that may be of significant importance for the growth control in normal and malignant cervical tissue. Normal cervical tissue and cervical cancer cells may be new targets for cancer prevention or cancer treatment with precursors of biologically active vitamin D analogues.” **That's right, plain old cheap vitamin D may help cervical cancer.**

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12017284

What about pancreatic cancer? Dr. Schwartz and colleagues at Wake Forest University School of Medicine reported, “The expression of 1 alpha(OH)ase in normal and malignant pancreatic tissue and the antiproliferative effects of the prohormone in these cells, suggest that 25(OH)D(3) may offer possible therapeutic and chemopreventive options for pancreatic cancer.” **That's right, plain old cheap vitamin D may help pancreatic cancer.**

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14742320

What about breast and ovarian cancer? Dr. Friedrich and colleagues at the University of Saarland in Germany found that cells from breast, ovary and cervical cancers have the enzymes needed to activate vitamin D and reported “cervical carcinomas, breast cancer and ovarian cancer may be considered as potential targets for prevention or therapy” . . . “by pharmacological modulation of 1,25(OH)2D3 synthesis and metabolism in these tumor cells.” **That's right, plain old cheap vitamin D may help breast, ovarian and cervical cancers.**

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12899526

None of these scientists are saying vitamin D will cure cancer.

They are simply saying there are good scientific reasons to believe it might help, especially in early cancer when the cancer cells retain better ability to activate vitamin D. It may even help in more advanced cancers, if not through its autocrine then through its paracrine functions. Of course, no study has ever shown that plain old cheap vitamin D helps any kind of cancer. Then, no such study has ever been conducted! Which leaves oncologists and others treating cancer patients (as well as those conducting clinical trials with vitamin D analogues) with a dilemma? Should you give vitamin D to cancer patients?

The answer is easy when you ask the question another way. Should cancer patients be treated for their vitamin D deficiency? Most people, including those serving on malpractice juries, might think so. Here's why. Vitamin D will greatly increase tissue levels of calcitriol which has remarkable anticancer properties. Moreover, a lot of epidemiological evidence suggests that plain old vitamin D helps prevent normal cells from turning cancerous. As cancer is a dynamic process, it makes sense to do everything one can do to prevent healthy cells from turning into malignant ones, especially in cancer patients. Next, tissue vitamin D is activated in direct proportion to the amount of vitamin D one gets from the sun or from supplements. In other words, the tissues make the anticancer agent, calcitriol, in direct proportion to blood 25(OH)D levels which, in turn, vary directly with vitamin D input. As one can see from the above papers, lots of experts from lots of different institutions now seem to be calling for the use of plain old vitamin D in cancer patients. Finally, cancer patients, who tend to be older, less mobile and less active are certainly vitamin D deficient, at least most of them. Remember, even the best hospital in the country, Mass General in Boston, found a very high incidence of vitamin D deficiency in their general inpatients, an incidence that was almost universal when modern definitions of vitamin D deficiency were applied. Cancer patients are likely to suffer from other vitamin D deficiency diseases, some of which are rapidly fatal, such as serious falls due to impaired balance. Other conditions such as hypertension, type 2 diabetes, heart disease, chronic pain and osteoporosis are more common in cancer patients. Recent studies suggest all these conditions may be helped by adequate vitamin D nutrition.

It is true that a few cancers are associated with high blood calcium, sometimes via vitamin D hypersensitivity, which may limit the use of vitamin D. Calcium levels are easily measured so this is hardly an excuse to keep all cancer patients vitamin D deficient.

While vitamin D analogues offer hope to millions of cancer patients, they do not treat vitamin D deficiency. That is, they do not fill your vitamin D tank. Unlike vitamin D, they do not force your body to make more calcitriol in your tissues. When your vitamin D tank is low, you make very little tissue calcitriol, most goes to the kidney to maintain serum calcium levels. When the tank is full, your tissues make lots of calcitriol.

So the contestants will slug it out in the sedate halls of the NIH in Bethesda, Maryland: the chronically under funded vitamin D scientists in one corner against the well-heeled drug company scientists in the other. When the match is over the facts will remain and, as Aldous Huxley once said, "Facts do not cease to exist because they are ignored." One fact is this: the higher your vitamin D intake, the more calcitriol in your tissues to fight cancer. Plain old vitamin D will fill your vitamin D tank and maximize tissue calcitriol. If I was forced into a match with cancer, I would make sure I had a good oncologist in my corner and do what he or she advised. However, when I got into the ring, I'd make sure my vitamin D tank was full.

John J. Cannell, MD
The Vitamin D Council
Atascadero, CA
<http://www.cholecalciferol-council.com>

Again, registration for the NIH conference on vitamin D and cancer is free and it's not too late to register.
<http://vitamind.ucr.edu/Cancer&CancerChemo.htm>

Save time! Get the latest medical news in your email every week with our newsletter.

Send your press releases to pressrelease@medicalnewstoday.com