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Is it possible to prevent tumors with nutritive supplements?

We now know that about 80% of the tumors related to environmental factors, including what we eat, drink and breathe. A few decades scientists have been trying to find a nutritional factor that would be innocuous, easily applicable and which would have a significant impact on the prevention of tumors or which will be able to prevent the growth of tumor cells. Till now it was conducted over 60 studies related to cancer prevention; only 9 were randomized and placebo-controlled with more than 1,000 patients controlled long enough. Huge amounts of money has been spent but conclusive findings still have not been obtained.

In vitro, vitamins A, C, E, selenium, coenzyme Q10, N-acetyl-cysteine, glutathione reduce the damage caused by oxidative processes. And what aout "in vivo"? Six studies investigated the effect of addition of antioxidants on recurrence and survival, from which three showed no effect, two had limited effect and one showed indeterminate result. Mayo Clinic has conducted three double-blind study in 367 patients with advanced cancer. All were given 10 grams of vitamin C per day, but without any positive effect.

Results of studies with nutritional supplements are often contradictory. In "Alpha Tocopherol Beta carotene Cancer Prevention Study" alpha tocopherol 50 mg daily resulted in 41% reduction in mortality rate in prostate cancer. But giving beta carotene at a dose of 20 mg per day increased by 23% the incidence of prostate cancer in smokers!

In one study, increased fiber intake led to a 77% decrease in the risk of cardia cancer and increased antioxidant intake reduces the risk of esophageal squamous-cell carcinoma by 40% and adenocarcinoma by 50%. Unfortunately, these results are not confirmed in other later studies.

Which are therefore present challenges in nutrition research in cancer? It all starts with the evidence obtained in laboratory experiments, then it should follow testing on humans in clinical trials, and finally an effective nutritional support should be spread throughout the community. The end result should be a drug derived from the nutrients that would treat cancer.

Currently any intervention with nutritional supplements are ineffective in invasive and extended or metastatic cancer. Dietary interventions can be directed to the period before the tumor becomes invasive in patients in whom genetic testing has confirmed that they are in high risk group for cancer development.

However we cannot ignore the exceptional importance of nutritional support in the reversion of tumor cachexia and the importance of maintaining patient weight, muscle mass, quality of life, all of which leads to the possibility of long-term application of chemo and radio therapy and thus to longer survival.

Biography

Renata Dobrila Dintinjana is working as a Professor of Internal medicine, specialist of Internal medicine, subspecialist of Medical Oncology. Currently she is Head of Radiotherapy and Oncology Clinic, University Hospital Rijeka, Croatia. Her research interests are Gastrointestinal Cancers, Supportive Cancer Care, especially nutrition. She has published various chapters in 7 books and more than 30 research papers. She is member of EACR, ESMO, ASCO, MASCC and Coordinator for Oncology Section of IASGO.

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