

Research Shows More Vitamin D May Mean Fewer Bladder Cancer Cases

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Rates generally lower nearer the equator; culture and diet may modify risk

The latest in a series of papers from researchers at Moores Cancer Center and the Department of Family and Preventive Medicine at University of California, San Diego, shows a clear association between deficiency in exposure to sunlight, specifically ultraviolet B (UVB), and bladder cancer.

UVB exposure triggers photosynthesis of vitamin D3 in the body. This form of vitamin D is also available through diet and supplements. Previous studies from this research team have shown associations between higher levels of vitamin D3 and lower risk of cancers of the breast, colon, kidney, ovary and more.

The most recent study was published in the March issue of the American Journal of Preventive Medicine.

“Although nearly half of all bladder cancer cases are due to smoking, and some can be attributed to occupational exposures, we have not had a good explanation for the cause of the remaining 35 to 55 percent of cases,” said Cedric F. Garland, DrPH, professor of Family and Preventive Medicine in the UCSD School of Medicine, and member of the Moores UCSD Cancer Center. “This study consistently showed bladder cancer incidence rates were higher in countries at higher latitudes, and lower closer to the equator.”

This research team once again used worldwide data available through a new tool called GLOBOCAN, developed by the World Health Organization’s International Agency for Research on Cancer. GLOBOCAN is a database of cancer incidence, mortality and prevalence for 174 countries. This team’s first report using GLOBOCAN data, which illuminated a similar pattern for kidney cancer, was published Sept. 15, 2006, in the International Journal of Cancer.

The researchers created a graph with a vertical axis for bladder cancer incidence rates and a horizontal axis for latitude. The latitudes range from -50 for the southern hemisphere, to zero for the equator, to +70 for the northern hemisphere. They then plotted age-standardized incidence

rates for 174 countries according to latitude. The resulting chart was a parabolic curve that looks like a smile.

Garland and co-authors caution that this was a study of aggregates, or countries, rather than individuals; findings that apply to aggregates may not apply to individuals. They recommend further research to study individuals for the effect of vitamin D from sunlight, diet and supplements on the risk of bladder cancer.

“In general, bladder cancer incidence was highest at the highest latitudes in both hemispheres,” explained Garland. “But this study could not account for differences in health care expenditure, culture, behavior or diet across the countries and latitudes, which could modify risk.” For example, although it receives abundant sunlight, Egypt has the highest incidence of bladder cancer in the world, but it also has a high prevalence of smoking.

If vitamin D deficiency is a risk factor for bladder cancer, as this study suggests, Garland says the deficiency could be addressed with simple measures, such as vitamin D3 supplementation.

In addition to Cedric Garland, authors on the paper were: Sharif B. Mohr, MPH, Frank C. Garland, PhD, Edward D. Gorham, PhD, and William B. Grant, PhD. Authors’ institutional affiliations are UCSD Department of Family and Preventive Medicine and Moores UCSD Cancer Center (Garland, Garland, Gorham and Mohr); the Behavioral Sciences and Epidemiology Program, Naval Health Research Center (F. Garland and Gorham); and the Sunlight, Nutrition and Health Research Center, San Francisco (Grant).

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Media Contact: Kim Edwards, 619-543-6163, kedwards@ucsd.edu



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