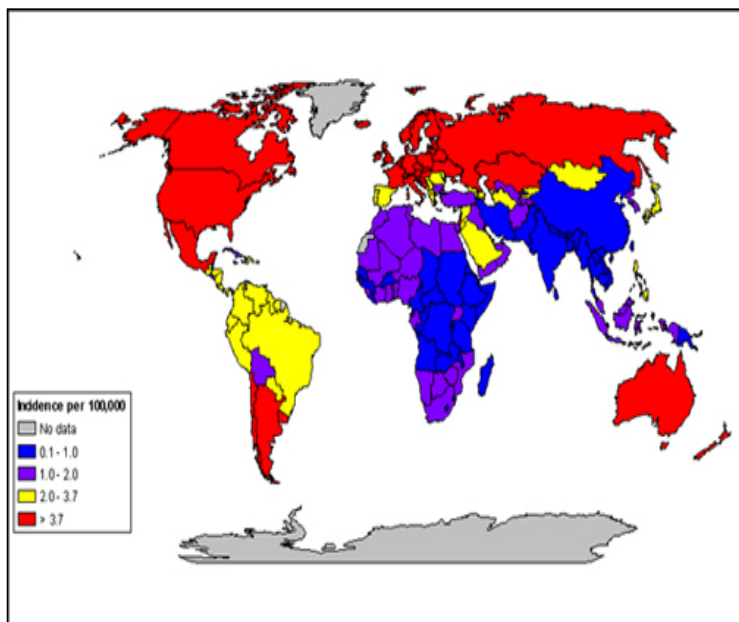


Global View Shows Strong Link Between Kidney Cancer, Sunlight Exposure

September 18, 2006 |

Using newly available data on worldwide cancer incidence to map cancer rates in relation to proximity to the equator, researchers at the Moores Cancer Center at University of California, San Diego (UCSD) have shown a clear association between deficiency in exposure to sunlight, specifically ultraviolet B (UVB), and kidney cancer.



MAP OF RENAL CANCER INCIDENCE RATES IN FEMALES, 175 COUNTRIES

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

“Kidney cancer is a mysterious cancer for which no widely accepted cause or means of prevention exists, so we wanted to build on research by one of the co-authors, William Grant, and see if it might be related to deficiency of vitamin D,” said study co-author Cedric Garland, Dr. P.H.,

professor of Family and Preventive Medicine in the UCSD School of Medicine, and member of the Moores UCSD Cancer Center.

There will be approximately 208,500 cases and 101,900 deaths from kidney cancer worldwide in 2006, including 39,000 new cases and 12,700 deaths in the United States, according to the International Agency for Research on Cancer and the American Cancer Society.

The study, published in the International Journal of Cancer's online edition dated September 15, is the research team's newest finding relating exposure to the sun as a source of vitamin D, and estimated vitamin D deficiency to higher rates of several major types of cancer.

This paper used worldwide data only recently 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 175 countries.

The researchers created a graph with a vertical axis for renal cancer incidence rates, and a horizontal axis for latitude. The latitudes range from -90 for the southern hemisphere, to zero for the equator, to +90 for the northern hemisphere. They then plotted incidence rates for 175 countries according to latitude. The resulting chart was a parabolic curve that looks like a smile (see accompanying images).

"The plot points created a curve roughly resembling a smile, with countries with high incidence rates at the left and right, and those with low incidence rates in the center, just a few degrees from the equator," said Garland. "Countries with the highest cancer rates were places like New Zealand and Uruguay in the southern hemisphere and Iceland and the Czech Republic in the northern hemisphere. Clustered at the bottom of the curve with lowest incidence rates were Guam, Indonesia and other equatorial countries on most continents, including many varied equatorial cultures."

In addition to UVB, the researchers analyzed cloud cover and intake of calories from animal sources for their association to kidney cancer. The scientists were able to determine the contributions of each independently. After accounting for cloud cover and intake of animal protein, UVB exposure still showed a significant independent association with incidence rates.

"Because the distinctive "smiley" parabolic curve is present for both sexes, it is unlikely that the international differences are due to occupational exposures, which usually vary according to gender, " said co-author Sharif B. Mohr, M.P.H.

In the paper, the authors discuss and account for other possible variables such as ozone, aerosols and obesity.

"This was a study of aggregates, or countries, rather than individuals. Findings that apply to aggregates may not apply to individuals," said co-author Edward D. Gorham, M.P.H., Ph.D.

“Since ecological studies may not be able to control for all relevant confounding factors, observational studies of the effect of vitamin D from sunlight, diet and supplements on the risk of kidney cancer in individuals would be desirable,” Gorham added.

The study was co-authored by Mohr, Gorham, Cedric F. Garland, and Frank C. Garland, Ph.D., of the UCSD Department of Family and Preventive Medicine and Moores UCSD Cancer Center; and William B. Grant, Ph.D., of the Sunlight, Nutrition and Health Research Center, San Francisco.

For a copy of the research paper, contact Nancy Stringer, 619-543-6163.

For hi-res images of the incidence/latitude graphs, and color maps of incidence which were not included in the paper, [click here](#). *Images courtesy Sharif B. Mohr, University of California, San Diego*

#

Media Contact: Nancy Stringer, 619-543-6163, nstringer@ucsd.edu

UCSD Health Sciences Communications HealthBeat: [News](#)

Related Specialties

[Urologic Cancer Unit](#) 

[UCSD Moores Cancer Center](#) 

[Family Medicine](#)

Share This Article



Related News

[UC San Diego Health Begins Treating Multiple Myeloma with CAR T-cell Therapy](#)
6/3/2021

[Social Justice as Part of the Remedy for What Ails Us](#)
6/3/2021

[Diet Plays Critical Role in NASH Progressing to Liver Cancer in Mouse Model](#)
6/1/2021

Noted Researcher and Scientific
Leader Jack E. Dixon Retires
5/27/2021

[View All News >](#)

Follow Us

 Follow @ucsdhealth

