

Link Between Ovarian Cancer, Vitamin D Status Seen Worldwide

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Using newly available data on worldwide cancer incidence, researchers at the Moores Cancer Center at UCSD have shown a clear association between deficiency in exposure to sunlight, specifically ultraviolet B (UVB), and ovarian cancer.

UVB exposure triggers photosynthesis of vitamin D3 in the body. This form of vitamin D also is available through diet and supplements.

The study, published online October 31 in the American Journal of Preventive Medicine, provides new backing to the theory that vitamin D might play a role in the prevention of cancer.

"Unlike breast cancer, we have no widely accepted means of early detection or prevention for ovarian cancer," said the study's first author, Cedric F. Garland, Dr. P.H., professor of Family and Preventive Medicine in the UCSD School of Medicine, and member of the Moores UCSD Cancer Center. "This new global study shows a link between deficiency of vitamin D and increased incidence of ovarian cancer, suggesting that vitamin D supplementation may reduce the incidence of this aggressive cancer."

In the United States alone there are approximately 20,200 new cases and 15,300 deaths from ovarian cancer each year.

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 ovarian 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 graph was a parabolic curve that looks like a smile.

"In general, ovarian cancer incidence was highest at the highest latitudes in both hemispheres. They were about five times higher in high latitudes, like Iceland and Norway, than in equatorial regions like Asia, South America and Africa," said Garland. "Even after controlling for fertility, the association remained strong."

Fertility rates among females 15 to 19 years old are higher in equatorial regions. Women who have children early are typically at decreased risk of ovarian cancer.

Because there are many variables besides sun exposure associated with where a person lives and her risk of ovarian cancer, the authors recommend further research to study individuals for the effect of vitamin D from sunlight, diet and supplements on the risk of ovarian cancer.

This is the second environmental paper from this research team to show a strong association between vitamin D and cancer using global incidence data (GLOBOCAN). The first paper, which illuminated a similar pattern for kidney cancer, was published Sept. 15, 2006, in the International Journal of Cancer.

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