Vitamin D protects against liver cancer in European study

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(Medical Xpress)—Vitamin D has been shown to play an important role in liver function. Now a new study in Western Europeans shows that vitamin D lowers the risk of developing hepatocellular carcinoma (HCC), the main form of liver cancer. The findings are from the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort, coordinated by the International Agency for Research on Cancer (IARC-WHO, Lyon, France), Imperial College London (ICL, UK), and Rollins School of Public Health at Emory University.

The study is published in the June 6, 2014 edition of *Hepatology*.

Liver cancers, HCC and other sub-types, are collectively the sixth most common cancer and third highest cause of cancer-related deaths worldwide. Medical evidence reports that chronic hepatitis B (HBV) or hepatitis C (HCV) infection, exposure to mycotoxins, obesity, type 2 diabetes, tobacco smoking, and alcohol abuse are major risk factors for HCC.

Veronika Fedirko, PhD, assistant professor in the Department of Epidemiology at Emory University's Rollins School of Public Health and Mazda Jenab, PhD, scientist at the IARC-WHO, and team examined associations between pre-diagnostic blood vitamin D concentration and HCC.

"Despite evidence that vitamin D supports liver health, the association between vitamin D levels and HCC had not been fully examined," explains Fedirko, who is also lead author of the study. "Our study is the largest in Western populations to investigate levels of vitamin D and its impact on liver cancer risk."

"Our results suggest a role for vitamin D in HCC etiology, but it remains to be determined whether the association is causal," explains Jenab.

The study was funded by the French National Cancer Institute (INCA) and relied on data from the EPIC cohort—a large prospective study of over 520,000 participants from Western Europe with detailed data on lifestyle patterns. The study included 138 subjects that developed HCC between 1992 and 2010, after recruitment into the cohort. Each case was matched to a control by age, sex, study center, date and time of blood collection and fasting status. Blood vitamin D levels were measured by state-of-the-art liquid chromatography and tandem mass spectrometry.

Findings indicated that higher levels of vitamin D in the body cut the risk of HCC in half (49 percent risk reduction; highest vs. lowest tertile: multivariable-adjusted incident rate ratio = 0.51). Time from enrollment to diagnosis, pre-existing liver damage, and chronic HBV or HCV infection did not change the results.

"Given the rising incidence of liver cancer in developed countries and the potential of vitamin D to protect against HCC, further investigation in other populations is warranted," says Fedirko.

"There is steadily growing scientific evidence that low circulating vitamin D concentration is a marker of increased risk for various cancers, particularly colorectal cancer, but public health advocacy for vitamin D supplementation for cancer prevention must be based on more evidence. Better

understanding of HCC etiology can lead to effective prevention strategies for this disease that is often diagnosed in late stages with few treatment options," adds Jenab.

Provided by Emory University