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Large study shows no evidence that vitamin D can reduce lung cancer risk

Lyon, France, 27 April 2018 – A new study by the International Agency for Research on Cancer (IARC), published online in the *Annals of Oncology*¹, found that there was no association between circulating vitamin D levels and lung cancer risk. The report presents a robust analysis of more than 5300 case–control pairs nested within 20 international prospective cohort studies. This is the largest observational study to date on the relationship between vitamin D and cancer.

Vitamin D and lung cancer

Vitamin D is produced primarily in the skin after exposure to ultraviolet B (UVB) radiation. A secondary source of vitamin D is via diet or dietary supplementation.

Whether vitamin D plays a role in protecting against lung cancer has been a topic of debate, with a number of earlier, smaller studies suggesting that high vitamin D concentrations could protect against lung cancer.

This large new study aimed to provide a precise, definitive answer as to whether circulating vitamin D may affect lung cancer risk. Instead of relying only on self-reported smoking information (as previous, smaller studies have done), this study included an analysis of cotinine (a nicotine metabolite found in blood), which provided an objective measurement of recent tobacco exposure. The data also include robust estimates concerning vitamin D and lung cancer among former and never-smokers.

¹ Muller DC, Hodge AM, Fanidi A, Albanes D, Mai XM, Shu XO, et al. (2018). No association between circulating concentrations of vitamin D and risk of lung cancer: an analysis in 20 prospective studies in the Lung Cancer Cohort Consortium (LC3). *Ann Oncol*. Published online 2 April 2018. <http://dx.doi.org/10.1093/annonc/mdy104>

“The results are based on the most comprehensive data available and clearly show no association between high vitamin D concentrations and lung cancer risk”, says Dr Paul Brennan, the principal investigator of the study, “Our results are important because many prevention strategies are still focused on vitamin D supplementation as a protective measure against a number of diseases, including cancer.”

Lung cancer burden worldwide

Lung cancer is the deadliest cancer in the world, accounting for nearly 1.7 million deaths every year and 20% of all cancer deaths overall. Lung cancer survival rates are dismal, with the majority of lung cancer patients dying within 5 years of diagnosis, regardless of disease stage.

The main cause of lung cancer is tobacco exposure. The primary and most important lung cancer control measure is smoking cessation, but the lifetime risk of lung cancer among former smokers remains high, and never-smokers are also at risk.

“Given the high incidence of lung cancer worldwide, it is vital to prioritize efforts to reduce tobacco smoking and to identify additional preventive measures that may help to reduce the risk of the disease”, says Dr Christopher Wild, Director of IARC, “However, despite previous smaller studies suggesting that high vitamin D concentrations could protect against lung cancer, these new results do not support the idea of vitamin D supplementation for the primary prevention of lung cancer.”

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The International Agency for Research on Cancer (IARC) is part of the World Health Organization. Its mission is to coordinate and conduct research on the causes of human cancer and the mechanisms of carcinogenesis, and to develop scientific strategies for cancer control. The Agency is involved in both epidemiological and laboratory research and disseminates scientific information through publications, meetings, courses, and fellowships. If you wish your name to be removed from our press release e-mailing list, please write to com@iarc.fr.