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Higher blood vitamin D levels are associated with significantly decreased colon cancer risk in European populations

Lyon, France – Higher blood levels of vitamin D are associated with a reduced risk of colorectal cancer, according to a large, 1248-case study published today in the British Medical Journal (BMJ). Participants with the highest levels of blood vitamin D concentration had a nearly 40% decrease in colorectal cancer risk compared to those with the lowest levels of vitamin D.

The study, led collaboratively by the International Agency for Research on Cancer (IARC, Lyon, France) and Imperial College of London (London, UK) and funded by the World Cancer Research Fund (WCRF), is the largest ever on the topic, and one of the first on European populations. The results confirm previous findings from smaller studies based mostly on North American populations.

Recent publications have suggested maintenance of blood vitamin D levels at 50 nmol/l or higher for colorectal cancer prevention. Therefore this study also compared low and high levels of blood vitamin D concentration to a mid-level of 50–75 nmol/l. While levels below the mid-level were associated with increased risk, those above 75 nmol/l were not associated with any additional reduction in colon cancer risk compared to the mid-level.

Dr. Mazda Jenab (IARC), Dr. Elio Riboli (Imperial) and colleagues used data from the European Prospective Investigation into Cancer and Nutrition (EPIC, http://epic.iarc.fr), a prospective cohort of over 500 000 Western Europeans, to examine the associations between blood vitamin D concentration and colorectal cancer risk. “Our results support a role for vitamin D in the etiology of colorectal cancer, but this must be balanced with caution regarding the potential toxic effects of too much vitamin D and the fact that very little is known about the association of vitamin D with either increased or reduced risk of other cancers,” said Dr. Jenab.

“There is consistent scientific evidence that low circulating vitamin D concentration is a marker of increased risk for developing colon cancer. However, any public health advocacy for inducing higher circulating vitamin D concentrations by supplementation—as opposed to the average levels that can be achieved with a balanced diet combined with regular, moderate exposure to sunlight—should await clear-cut results from double-blind randomised trials testing whether increases in circulating vitamin D concentration via supplementation can effectively reduce colorectal cancer risk without inducing serious adverse events,” added Dr. Riboli, the coordinator of the EPIC study.

As the findings of previous randomised trials have been inconsistent, the authors stress the need for new trials. "Currently, the best recommendation to reduce one's risk of colorectal cancer is to stop smoking, increase physical activity, reduce obesity and abdominal fat, and limit intake of alcohol and red and processed meats," concluded Dr. Bas Bueno-de-Mesquita of the National Institute for Public Health and the Environment (RIVM, Bilthoven, the Netherlands) and the Department of Gastroenterology and Hepatology of the University Medical Centre (Utrecht, the Netherlands).

Colorectal cancer is the second most common cancer worldwide in terms of prevalence, after breast cancer. The incidence of colorectal cancer currently ranks fourth in men and third in women worldwide, with over 1 000 000 new cases each year. Mortality is approximately half that of incidence, with about 529 000 deaths worldwide in 2002. The majority of cancers occurring in the colon and rectum are adenocarcinomas, which account for more than 90% of all large bowel tumours.

IARC, 150 Cours Albert Thomas, 69372 Lyon CEDEX 08, France - Tel: +33 (0)4 72 73 84 85 - Fax: +33 (0)4 72 73 85 75

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For more information, please contact

Dr Mazda Jenab, Lifestyle and Cancer Group, at +33 (0)4 72 73 80 82 or jenab@iarc.fr;
or Nicolas Gaudin, IARC Communications at com@iarc.fr

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