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Meat intake and cancer risk: prospective analyses in UK Biobank

Anika Knuppel, Keren Papier, Paul N. Appleby, Timothy J. Key and Aurora Perez-Cornago
Cancer Epidemiology Unit, Nuffield Department of Population Health, University of Oxford, Oxford, United Kingdom

Abstract

Introduction: Meat intake is thought to play a role in the risk of cancer. The Third Expert Report of the World Cancer Research Fund/American Institute for Cancer Research concluded that red meat was a probable cause and processed meat a convincing cause of colorectal cancer. However, evidence for associations between red and processed meat intake and other cancer sites is limited. Furthermore, few studies have investigated the association between poultry intake and cancer risk. Therefore, this study aimed to examine the associations between red, processed meat and poultry intake and incidence for 20 common cancer sites.

Material and methods: We analysed data from 475,264 participants (54 % women) in UK Biobank. Participants were aged 37–73 years and cancer free at baseline. Cancer diagnosis and death due to cancer without prior diagnosis during follow-up were determined using data-linkage with cancer and death registries (with follow-up until 31 March 2016 for England and Wales and until 31 October 2015 for Scotland, respectively). Information on meat consumption was based on a touchscreen questionnaire completed at baseline covering type and frequency of meat intake. We used multivariable-adjusted Cox proportional hazards models to determine the association between baseline meat intake and cancer incidence. Analyses of lung cancer risk were restricted to never smokers. All analyses were adjusted for socio-demographic, lifestyle and women-specific factors.

Results: Over a mean 6.9 (SD 1.3) years of follow-up, 28,431 participants were diagnosed with any type of cancer. Red meat intake was positively associated with risk for colorectal cancer (n cases = 3,164; Hazard ratio (HR) per 50 g/day higher intake 1.22, 95% Confidence Interval (CI) 1.05–1.41), breast cancer (n cases = 5,536; 1.12, 1.01–1.24) and prostate cancer (n cases = 5,807; 1.16, 1.03–1.30). Processed meat intake was positively associated with risk for colorectal cancer (n cases = 3,189; HR per 20 g/day higher intake 1.17, 95% CI 1.06–1.30). Poultry intake was positively associated with risk for cancers of the lymphatic and hematopoietic tissues (n cases = 2,431; HR per 30g/day increment in intake 1.16, 95%-CI 1.03, 1.32).

Discussion: In summary, higher intakes of red and processed meat were associated with a higher risk of colorectal cancer. Red meat consumption was also positively associated with risk of breast and prostate cancer, but these associations are not supported by most previous prospective studies. The positive association of poultry intake with cancers of the lymphatic and hematopoietic tissues requires further investigation.

Conflict of Interest

There is no conflict of interest.