

Association of food processing and colorectal cancer risk in EPIC

Thursday, 23 November 2023 13:52 (12 minutes)

Introduction

Worldwide, more than 1.9 million new colorectal cancer cases and 935,000 deaths were estimated to occur in 2020, representing about one in 10 cancer cases and deaths. Previous studies found evidence of a positive association between the NOVA 4 consumption and colorectal cancer but few studied the association between the four Nova groups and the different anatomical subsites of CRC which constitutes the main aim of our study.

Methods

Setting and participants

450,111 participants recruited across 9 European countries and 6155 incident cases of CRC were detected. Dietary intakes were assessed using baseline food frequency questionnaires adapted to each country. Food items were classified into 4 groups (unprocessed foods, culinary ingredients, processed foods, and ultra-processed foods) according to the NOVA classification system.

Main outcome measures

Associations between ultra-processed food intake/ unprocessed food intake and risk of CRC/CRC subsites were assessed by multivariable Cox proportional hazard models stratified by age, centre and sex and adjusted for known risk factors.

Results

A 10% increase in the proportion of ultra-processed food was associated with 6% increase in the risk of overall CRC (p value=0.002) and 8% increase in the risk of colon cancer (p=0.001).

Strong associations were found for the processed food group (fourth quartile versus first quartile of consumption) with CRC (HR: 1.16(1.04-1.28;p=0.004) and CRC subtypes (HRcolon:1.23 (1.08-1.40); p=0.001; HRdistalcolon:1.28(1.06-1.56); p=0.010). We lost these associations when alcohol is removed from this food group.

In parallel, unprocessed food group was inversely associated with CRC (HR:0.93, 95%CI: 0.90–0.95) and all CRC subtypes.

Conclusion

These findings are in line with the recommendations that encourage the consumption of unprocessed/minimally processed food instead of ultra-processed food as potential way for reducing CRC risk. These results also support the strong evidence of the role of alcoholic beverages in increasing the risk of CRC. Further studies are needed to better understand the pathways in which food processing affects colorectal cancer risk.

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Session Classification: Oral Presentations