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► To cite this version:

Mathilde Touvier, Mélanie Deschasaux, François Mariotti, Lola Neufcourt, Nitin Shivappa, et al.. Prospective association between the dietary inflammatory index and cancer risk and mortality: results from the SU.VI.MAX cohort. IARC's 50th Anniversary, Jun 2016, Lyon, France. , 518 p., 2016, IARC's 50th Anniversary "Cancer: Occurrence, Causes, Prevention". Abstracts. hal-02740337

HAL Id: hal-02740337

<https://hal.inrae.fr/hal-02740337>

Submitted on 2 Jun 2020

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B-071 - Prospective Association Between The Dietary Inflammatory Index And Cancer Risk And Mortality: Results From The SU.VI.MAX Cohort

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Purpose:

Chronic inflammation is one of the mechanisms involved in carcinogenesis. Diet is a major source of pro/anti-inflammatory compounds. The Dietary Inflammatory Index (DII) was designed to estimate its overall inflammatory potential. Our objective was to investigate the associations between DII and cancer risk (overall, breast and prostate) and mortality.

Methods:

The SU.VI.MAX study was a randomized, double-blind, placebo-controlled trial (1994-2002) in which participants received low-dose antioxidants or a placebo. This prospective study included 7997 participants (follow-up: 1994-2007). The DII was based on 36 food parameters and was calculated from repeated 24h dietary records. Higher scores reflected more pro-inflammatory diets. 559 cancers were diagnosed (median follow-up=12.6y), including 158 breast and 123 prostate cancers. 123 participants died from cancer. Associations were characterized by multivariable Cox proportional hazards models.

Results:

The DII was positively associated with prostate cancer risk ($HR_{\text{Quartile4vsQ1}}=2.08$ (1.06-4.09); $P=0.005$). Alcohol intake modified the association between DII and overall cancer risk ($P\text{-interaction}=0.02$). An increased risk was observed in low-to-moderate alcohol drinkers ($HR_{\text{Q4vsQ1}}=1.75$ (1.15-2.68); $P\text{-trend}=0.02$), whereas no association was detected in higher alcohol consumers ($P\text{-trend}=0.8$). This interaction also was observed for breast cancer ($P\text{-interaction}=0.001$). The DII was positively associated with cancer mortality in the placebo group of the SU.VI.MAX trial ($HR_{\text{Tertile3vsT1}}=2.65$ (1.18-5.98); $P\text{-trend}=0.02$) but not in the antioxidant-supplemented group ($P\text{-trend}=0.3$).

Conclusions:

Consistent with mechanistic data, these results showed that pro-inflammatory diets are associated with increased prostate cancer risk; increased overall and breast cancer risk among low-to-moderate drinkers; and increased cancer mortality in participants not supplemented with antioxidants, suggesting that antioxidants may counteract some of the deleterious effects of pro-inflammatory diets.

Funding source:

French Ministries of Research and Higher Education and of Agriculture, Food and Forestry, internship grants (LG, LN)

Cancéropôle Ile-de-France, Ile-de-France Region, PhD grant (MD)

US National Institute for Diabetes and Digestive and Kidney Diseases, grant R44DK103377 (NS, JRH, MDW)