



HAL
open science

Dietary iron and breast cancer risk - modulation by an antioxidant supplementation in the SU.VI.MAX randomized controlled trial

Melanie Deschasaux, Mathilde Touvier, Fabrice H.F. Pierre, Françoise Guéraud, Philippine Fassier, Serge Hercberg, Paule Latino Martel, Valentin Partula, Abou Diallo

► To cite this version:

Melanie Deschasaux, Mathilde Touvier, Fabrice H.F. Pierre, Françoise Guéraud, Philippine Fassier, et al.. Dietary iron and breast cancer risk - modulation by an antioxidant supplementation in the SU.VI.MAX randomized controlled trial. IARC's 50th Anniversary, Jun 2016, Lyon, France. , 518 p., 2016, IARC's 50th Anniversary "Cancer: Occurrence, Causes, Prevention". Abstracts. hal-02743356

HAL Id: hal-02743356

<https://hal.inrae.fr/hal-02743356v1>

Submitted on 3 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

B-069 - Dietary Iron And Breast Cancer Risk ñ Modulation By An Antioxidant Supplementation In The SU.VI.MAX Randomized Controlled Trial

MÉLANIE DESCHASAUX, SORBONNE PARIS CITÉ EPIDEMIOLOGY AND STATISTICS RESEARCH CENTER (CRESS), INSERM U1153, INRA U1125, CNAM, PARIS 13 UNIVERSITY, FRANCE

TOUVIER M. ¹, PIERRE F. ³, GUÉRAUD F. ³, FASSIER P. ¹, HERCBERG S. ^{1,2}, LATINO-MARTEL P. ¹, PARTULA V. ¹, DIALLO A. ¹

¹ Sorbonne Paris Cité Epidemiology and Statistics Research Center (CRESS), Inserm U1153, Inra U1125, Cnam, Paris 13 University, Nutritional Epidemiology Research Team (EREN), 93017 Bobigny, France

² Public Health Department, Avicenne Hospital, Bobigny, France

³ UMR 1331 Toxalim, Toulouse, France

Purpose:

Epidemiological evidence suggested that red and processed meat intake may be associated with increased breast cancer risk. Recent experimental studies showed that, among the pro-carcinogenic compounds found in red/processed meat, heme iron may be particularly involved in the initiation of carcinogenesis, through lipid peroxidation. Thus, it could be hypothesized that iron intake may all the more increase cancer risk as diet has a low antioxidant potential and a high lipid content. Our objectives were to prospectively investigate the association between dietary iron intake and breast cancer risk, and its potential modulation by antioxidant supplementation and lipid intake.

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 4646 women. 188 incident breast cancers were diagnosed (median follow-up=12.6y). Dietary iron intakes were assessed using repeated 24h dietary records. Associations were characterized by multivariate Cox proportional hazards models.

Results:

Dietary iron intake was associated with an increased breast cancer risk ($HR_{T3vs.T1}=1.67$ (1.02-2.71), P -trend=0.04). This association was more specifically observed in the placebo group of the SU.VI.MAX trial ($HR_{T3vs.T1}=2.80$ (1.42-5.54), P -trend=0.003), but not in the antioxidant-supplemented group (P -trend=0.7, P -interaction=0.1). Besides, in the placebo group, increased breast cancer risk associated with iron intake tended to be more specifically observed in women with higher lipid intake ($HR_{T3vs.T1}=2.57$ (0.86-7.69), P -trend=0.046).

Conclusions:

In this prospective study, dietary iron intake was associated with an increased breast cancer risk. This association was modified by an antioxidant supplementation and by lipid intake. Dietary iron intake was associated with breast cancer risk in the women not supplemented with antioxidants and in women with higher lipid intakes. These epidemiological findings support the experimental results suggesting that heme iron may increase breast cancer risk through lipid peroxidation.

Funding source:

Cancéropôle Ile-de-France, Ile-de-France Region, PhD grant (Mélania Deschasaux)