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Schedule of Events   -   Scientific Program   -   Abstracts by Session

Presentation title: Dietary intake of acrylamide and risk of breast, endometrial and ovarian cancers: systematic review and dose-response meta-analysis

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Dr. Filippini, MD, is a Researcher and a PhD student in Public Health at the University of Modena and Reggio Emilia. He works in the studies of health effects of environmental risk factors, particularly dietary risk factors and outdoor pollutants, with specific reference to the risk of chronic diseases such as neurodegenerative diseases and cancer.

Text of abstract:
Background: Acrylamide is probable human carcinogen that occurs naturally in starchy foods during cooking processes at high temperatures. Aside from occupational exposures and smoking, main source of human exposure is diet, particularly consumption of potatoes, grain products, and coffee. High acrylamide intake has been associated with altered sex-steroid hormone concentrations and increased risk of hormone-dependent gynecologic neoplasms.
Objective: We performed a systematic review of the papers investigating the association between acrylamide intake and risk of breast, endometrial and ovarian cancer. We also examined a possible dose-response relation by carrying out a dose-response meta-analysis of these studies.
Methods: We searched in PubMed up to September 10, 2019 the non-experimental human studies investigating risk of breast, endometrial, or ovarian cancer in relation to dietary intake of acrylamide. We also carried out a dose-response meta-analysis using a restricted cubic spline model.
Results: We retrieved 18 studies: 11 cohort, 5 case-cohort, and 2 case-control studies. Since some studies assessed more than one cancer type, we found a total of ten studies on risk of breast cancer, seven on endometrial cancer, and seven on ovarian cancer. In the dose-response meta-analysis, acrylamide intake was associated with slightly increased risks of endometrial and ovarian cancers, with a stronger and almost linear increased risk among never smokers. Conversely, for breast cancer we found no evidence to support an increased risk following acrylamide exposure, except for a positive association among premenopausal women exposed to at least 20 µg/day of acrylamide.
Conclusions: Based on the relatively small number of studies published to date, acrylamide intake was associated with increased risk of endometrial and ovarian cancer in a dose-response fashion, with a slightly stronger association observed among never smokers. Acrylamide intake

was associated with an increased risk of breast cancer only among premenopausal women and at intakes greater than 20 µg/day.