Supplemento 3

Atti
Le giornate della ricerca scientifica
e delle esperienze professionali dei giovani
Società Italiana di Igiene, Medicina Preventiva e Sanità Pubblica (SItI)
Roma 20-21 dicembre 2019
LE GIORNATE DELLA RICERCA SCIENTIFICA E DELLE ESPERIENZE PROFESSIONALI DEI GIOVANI

ROMA

20 Dicembre 2019
Istituto Superiore di Sanità
Viale Regina Elena 299

21 Dicembre 2019
Dipartimento di Sanità Pubblica e Malattie Infettive
Sapienza Università di Roma - Piazzale Aldo Moro 5
Effect modification of smoking status and menopausal status on the association between dietary intake of acrylamide and risk of breast cancer

ADANI GIORGIA, FILIPPINI TOMMASO, VINCETI MARCO
Environmental, Genetic and Nutritional Epidemiology Research Center (CREAGEN), Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Modena

INTRODUCTION
Acrylamide is a 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 cancers, such as breast neoplasm with inconsistent findings. Since this cancer type represents a major cause of death among both premenopausal and postmenopausal women, investigating its environmental and life-style risk factors, including for instance acrylamide intake, is of key relevance under a public health perspective.

MATERIALS AND METHODS
We performed a systematic review of the association between estimated dietary intake of acrylamide and risk of female breast cancer. Using PubMed, we performed a systematic search for non-experimental studies published through October 20, 2019 and we first performed a meta-analysis of the overall measure of association. Subsequently, we carried out a dose-response meta-analysis of these associations using restricted cubic spline models which allow to estimate the summary relative risk (sRR) across a large exposure range of acrylamide intake alongside with their approximate pointwise 95% confidence interval (CI).

RESULTS
We identified 10 papers covering 8 different study populations: 9 cohorts and 1 case-control studies, with a total of 18100 cases of breast cancer. Acrylamide dietary intake ranged from 3.6 µg/day to 44 µg/day, with both mean and median values of 21 µg/day (range 6.3 to 29.8 µg/day). In the meta-analysis summarizing the RR in the highest category of exposure versus the lowest, we found no evidence of cancer risk at any levels of acrylamide exposure. In the meta-analysis for aggregated data, investigating its environmental and life-style risk factors, including for instance acrylamide intake, is of key relevance under a public health perspective.

CONCLUSIONS
In conclusion, there was limited evidence for an association between acrylamide intake and breast cancer risk, with the exception of increased risks at the highest levels of acrylamide exposure among premenopausal women, which warrants further investigation.

REFERENCES