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UNIMORE



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Department of Veterinary Medical Sciences DIMEVET
Alma Mater Studiorum, University of Bologna

The role of trace elements in health: from healthy environments to healthy living organisms

ABSTRACT BOOK

Organized by:

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P-14. Correlation between dietary selenium exposure with biochemical and metabolic parameters: A cross-sectional study in Northern Italy population

Marco Vinceti^{1,2}, Daniela Lasagni³, Francesco Bruzziches¹, Claudia Baraldi¹, Carlotta Malagoli¹, Sara Grioni⁴, Sabina Sieri⁴, Annalisa Santachiara⁵, Tiziana De Luca³, Thelma Pertinhez^{3,6}, Roberto Baricchi³, Tommaso Filippini¹

¹*Environmental, Genetic and Nutritional Epidemiology Research Center (CREAGEN), Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Modena, Italy*

²*Department of Epidemiology, Boston University School of Public Health, Boston, USA*

³*Transfusion Medicine Unit, AUSL-IRCCS, Reggio Emilia, Italy*

⁴*Epidemiology and Prevention Unit, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy*

⁵*AVIS – Section of Reggio Emilia, Reggio Emilia, Italy*

⁶*Department of Medicine and Surgery, University of Parma, Parma, Italy*

Background and aim: The metalloid selenium shows an intriguing role with human health, with both nutritional and toxicological effects. In particular, recent studies suggest that high selenium exposure could be associated with impairment of metabolism of lipids, glucose and thyroid function. This study aims at assessing dietary levels of exposure to selenium and assess the correlation between selenium levels and biochemical and metabolic parameters in an Italian community.

Methods: In a sample adult population of ever smokers from Reggio Emilia Province we estimated dietary selenium intake through a food frequency questionnaire, validated for the Northern Italy population. From each participant we collected a fasten blood sample for determination of biochemical parameters and hormone levels, including alanine transaminase, blood glucose, total cholesterol, high-density lipoproteins (HDL), and thyroid-stimulating hormone (TSH). All subjects who participated to this study signed a written informed consent. **Results:** In participants recruited from March 2017 to May 2018 the mean (standard deviation) dietary selenium intake was 101.0 (47.3) µg/day. We found negative correlation between selenium intake and HDL levels, while a positive one with TSH levels. Moreover, in sex-stratified analysis, we found a positive association between selenium intake with blood glucose levels in females.

Discussion: The dietary selenium intake in our Italian population is far above the recommended intake of 70 µg/day by the European Food Safety Authority. Our correlation analyses suggest that even at levels below the upper toxicity limits and generally considered safe, adverse effects on endocrine and metabolic systems could not be excluded, with possible sex-related differences in toxicity susceptibility.

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