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Schedule of Events
Scientific Program
Abstracts by Session

**SCIENTIFIC SESSION IV:
WORK OF THE FELLOWS POSTER PRESENTATIONS**

Presentation title:

Methods to assess cadmium intake in biomonitoring surveys

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Background: Cadmium (Cd) is a human carcinogen, and represents one of the prioritized substances included in the current European Human Biomonitoring Initiative. A Provisional Tolerable Weekly Intake (PTWI) for this heavy metal of 2.5 µg/kg body weight (bw) was recently set by the European Food and Safety Authority. To estimate the Cd intake, commonly used methods are dietary assessment and biomarkers such as urine and blood/serum Cd levels. We assessed dietary Cd intake in a biomonitoring survey using two alternative methods.

Methods/Approach: In a random sample of the adult general population of Modena, Northern Italy, we assessed Cd intake using the EPIC semi-quantitative self-administered food frequency questionnaire. We also estimated Cd intake with an alternative method based on serum Cd levels measured through ICP-MS. To do that, we considered that 10% of circulating Cd is found in plasma/serum and that 5% of Cd ingested with foods is generally absorbed. We also took into account the contribution to Cd exposure by tobacco smoking.

Results: In the 51 subjects investigated, median dietary Cd intake estimated with the questionnaire was 13.4 µg/day (interquartile range (IQR) 10.4-16.8), yielding a weekly intake (WI) of 1.34 µg/kg bw (IQR:0.85-1.70, range:0.26-3.18). Based on the median serum Cd of 0.041 µg/L (IQR 0.030-0.054) in this population and taking into account tobacco smoking, we estimated instead a WI of 0.80 µg/kg bw (IQR:0.62-1.09, range:0.27-2.47).

Conclusions: In this Italian population, we found higher estimates of Cd intake using a dietary questionnaire than when we estimated it through its serum levels. Dietary assessment methods based on food frequency questionnaires might therefore overestimate Cd intake, or alternatively a higher ratio between dietary and serum Cd has to be considered compared to what predicted by literature data. Based on dietary assessment method, some subjects of the study population may exceed the Cd PTWI.