

RELATIONSHIP BETWEEN OCCUPATIONAL EXPOSURE TO POTENTIALLY TOXIC ELEMENTS AND DIETARY INTAKE OF INFORMAL WORKERS

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INTRODUCTION: Work is a health determinant often expose individuals to various risks, including chemical hazards. Among these are potentially toxic elements (PTEs), such as certain metals and metalloids, like lead (Pb), cadmium (Cd) and arsenic (As), which can be harmful to human health. In addition, dietary intake may influence a diversity of reactions on human body, such as antioxidant pathways. Similarly, dietary differences can be related to PTE levels in blood and may influence the exposure outcome. **OBJECTIVE:** Evaluate the association between PTE levels in blood and dietary intake amongst informal workers exposed to PTEs. **MATERIALS AND METHODS:** Blood samples were collected from a total of 59 women in the city of Limeira, São Paulo, Brazil, divided into an exposed group ($n = 32$), consisting of women engaged in informal jewelry soldering, and a control group ($n = 27$), to determine the concentration of PTEs (As, Cd, Cr, Cu, Hg, Mn, Ni, Pb, Sb, Sn and Zn) by ICP-MS. Additionally, a 24-hour dietary recall (R24h) was performed for each subject to estimate nutrient, fruit and vegetable intakes using Nutrition Data System for Research (NDSR) software. Statistical analyses performed using R software included group comparison tests (Mann-Whitney) and correlations (Spearman). **RESULTS AND CONCLUSIONS:** Significant differences ($p < 0.05$) were observed in the dietary intake of magnesium (Mg), total protein and riboflavin (B2), with higher values in the control group. However, As, Cd and Pb concentrations were significantly higher in the exposed group. Furthermore, dietary magnesium showed a negative correlation with the concentrations of As ($r = -0.29$; $p = 0.03$), Cd ($r = -0.38$; $p = 0.04$) and Pb ($r = -0.32$; $p = 0.02$); dietary copper correlated negatively with concentrations of As ($r = -0.28$; $p = 0.03$) and Hg ($r = -0.28$; $p = 0.03$); and dietary zinc with concentrations of Sb ($r = -0.41$; $p = 0.01$). The results suggest that dietary intake with a higher nutrient density, particularly of those known for their antioxidant potential, may be associated with lower blood levels of PTEs. Additionally, informal work may be associated with reduced access to these nutrients.

KEYWORDS: Toxic potential; Workers health; Dietary Intake; occupational exposure.

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