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ABSTRACT

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Title	INTERACTION BETWEEN ENVIRONMENTAL LEAD AND CADMIUM EXPOSURE IS ASSOCIATED WITH POOR MEMORY PERFORMANCE AND OXIDANT DEFENSES IN OLDER ADULTS Room: Poster Area - Session: F13 - Abstract Number: FENS-2822 - Poster Board Number: F011
Poster No:	F011
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Session:	F13: Poster Session - Human cognition and behaviour - Cognitive development and aging Poster boards: F001-013
Date:	Monday - July 07, 2014 13:30 - 14:30
Location:	Poster Area
Subtopic:	F.1.g Cognitive development and aging
Topic:	F.1 Human cognition and behaviour
Theme:	F. Cognition and behaviour

Heavy metals exposure such as lead (Pb) and cadmium (Cd) is associated with poor cognitive performance. However, the exactly mechanism underlying this association is still under investigation. Interestingly, impaired oxidant defenses are associated with high levels of metals and poor memory performance. Nonetheless, this association has not been studied yet among elderly. This is particularly relevant since metal levels below the threshold limit recommended by the Centers for Disease Control appear to produce cognitive impairments. The current study examined the association between Pb and Cd, antioxidant enzymes and working memory performance in elderly. Pb and Cd and the antioxidant enzymes (glutathione peroxidase - GPx, glutathione reductase - GR, catalase ? CAT) were determined from blood samples of 126 older adults without cognitive impairment or previous occupational metal exposure. Working memory was evaluated using the counting span (CS). A negative correlation was observed between Cd and CS ($r = -0.406$; $p = 0.0001$) and Cd and GPx ($r = -0.244$; $p = 0.006$) and CAT ($r = -0.359$; $p = 0.0001$). No association was observed between Pb and memory or antioxidant enzymes. However, controlling for multicollinearity, Linear Regression model showed that the interaction between Pb and Cd exhibited a significant effect on CS ($\beta = -0.319$; $p = 0.0001$) as well as on antioxidant enzymes (GPx $\beta = -0.240$, $p = 0.007$; CAT $\beta = -0.357$; $p = 0.0001$). These findings suggest that Cd alone and combined with Pb are associated with poor working memory performance and lower levels of antioxidant enzymes.

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