EuroSciCon

2nd Edition of EuroSciCon Congress on

Heart Disease and Interventional Cardiology

February 25-26, 2019
Paris, France

Interv Cardiol J 2019, Volume: 5
DOI: 10.21767/2471-8157-C1-006

ASSOCIATION BETWEEN BLOOD LEAD AND BLOOD PRESSURE: A POPULATION-BASED STUDY IN BRAZILIAN ADULTS

Monica Maria Bastos Paoliello[1,4], Ana Carolina Bertin de Almeida Lopes[1], Ellen Kovner Silbergeld[2], Ana Navas-Acien[2], Rachel Zamoiski[2], Airton da Cunha Martins[3], Mariana Ragassi Urbano[1] and Arthur Eumann Mesas[1]

[1]State University of Londrina, Brazil
[2]Johns Hopkins Bloomberg School of Public Health, USA
[3]University of São Paulo, Brazil
[4]Albert Einstein College of Medicine, USA

Background: Environmental lead exposure among adults may increase blood pressure and elevate the risk of hypertension. The availability of data on blood lead levels (BLL) in adult Brazilian population is scarce and population-based studies are important for screening the population exposure and also to evaluate associations with adverse health effects. The goal of this study was to examine the association of BLL with blood pressure and hypertension in a population-based study in a city in Southern Brazil.

Methods: A total of 948 adults, aged 40 years or older, were randomly selected. Information on socioeconomic, dietary, lifestyle and occupational background was obtained by orally administered household interviews. Systolic blood pressure (SBP) and diastolic blood pressure (DBP) were measured according to the guidelines VI Brazilian Guidelines on Hypertension. BLL were measured by inductively coupled plasma mass spectrometry technique. Multiple linear and logistic regression models were performed to evaluate associations of BLL with SBP and DBP, and with the chance of hypertension and of elevated SBP and DBP.

Results: The geometric mean of BLL was 1.97 µg/dL (95% CI: 1.90-2.04 µg/dL). After multivariable adjustment, participants in the quartile 4 of blood lead presented 0.06 mm/Hg (95% CI, 0.04-0.09) average difference in DBP comparing with those in quartile 1. Participants in the 90th percentile of blood lead distribution had 0.07 mmHg (95% CI, 0.03 to 0.11) higher DBP compared with those participants in the 10th percentile of blood lead. The adjusted OR for hypertension was 2.54 (95% CI, 1.17-5.53), comparing the highest to the lowest blood lead quartiles. Compared with participants in the 10th percentile of blood lead, participants in the 90th percentile presented higher OR for hypertension (OR: 2.77; 95% CI, 1.41 to 5.46).

Conclusion: At low concentrations, BLL were positively associated with DBP and with the odds for hypertension in adults aged 40 or older. It is important to enforce lead exposure monitoring and the enactment of regulatory laws to prevent lead contamination in urban settings.

monibas2@gmail.com