# ASSOCIATION BETWEEN LEAD EXPOSURE AND CARDIOVASCULAR RISK FACTORS IN AN ABORIGINAL POPULATION OF CANADA (JAMES BAY, QUEBEC)

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**Background and aims:** Lead exposure among Cree living in the eastern coast of the James Bay (Quebec) is related to hunting with lead shots and consumption of wildfowl and game. Exposure to lead has been associated with reduced heart rate variability (HRV) and increased blood pressure (BP), which are known cardiovascular risk factors. Low HRV is associated with sudden death while BP is a risk factor for ischemic heart diseases (IHD) and stroke. We aimed to assess the impact of lead on BP and HRV among Cree adults considering potential confounding factors.
**Methods:** Data were collected among 397 adults ≥ 18 years old living in three communities of the James Bay. Blood lead level was used as biomarker of recent exposure. BP was measured according to the WHO guidelines while HRV was derived from a 2-hour Holter monitoring. The relationship between lead and BP and HRV was studied using simple and multiple linear regressions in order to adjust for confounders (age, sex, fasting glucose, obesity, cholesterol, smoking, physical activity, antihypertensive/antiarrhythmic treatment, n-3 fatty acids, selenium and mercury levels).
**Results:** Mean age was 40±15 years and the sample was composed of 165 women and 232 men. Geometric mean of blood lead concentration was 0.12 μmol/L (95%CI: 0.11-0.13 μmol/L). Lead was negatively associated with HRV parameters such as low frequency (LF) ($\beta$= -0.22, p< 0.0001) and high frequency (HF) ($\beta$= -0.24, p= 0.0001) but these associations did not remained statistically significant after adjusting for confounders. In contrast, lead was positively associated with systolic blood pressure (SBP) ($\beta$= 2.66, p= 0.009) and diastolic blood pressure (DBP) ($\beta$= 1.77, p= 0.014) after adjusting for confounders.
**Conclusion:** Recent lead exposure seems to be associated with increased SBP and DBP among Cree of the James Bay.