

Mom's lead exposure linked to higher blood pressure in their daughters

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(Medical Xpress) -- Prenatal lead exposure is linked to a greater risk of high blood pressure in teen girls, but not in boys, a new study from the University of Michigan shows.

"This study suggests that a common chemical pollutant—lead—can build up in mom's bones and then increase their daughter's risk of developing hypertension, the most important risk factor for stroke and [heart disease](#)," said Howard Hu, professor at the U-M School of Public Health and lead study author. "It further increases the importance of reducing such exposures. It also significantly increases the pressure to study how such risks get transferred so we can develop better methods of treatment, including better drugs."

Researchers used data from the Early Life Exposures in Mexico to Environmental Toxicants project to examine the relationship between prenatal lead exposure and blood pressure in 457 children ages 7-15. Researchers measured the lead accumulations in both bone and in the umbilical cords of mothers in the study.

Among female offspring, a 13 ug/g increase in maternal tibia lead was associated with an increase of 2.11 mm Hg in systolic blood pressure, and an increase of 1.60 mm Hg in diastolic blood pressure. To put those numbers in perspective, Hu said, consider that previous studies have shown that a 2 mm Hg increase in systolic blood pressure results in a 7 percent increase in the risk of death due to ischemic heart disease and a 10 percent increase in the risk of death due to stroke.

This is the first study to examine the association of a mother's bone lead levels with blood pressure in her children. The significant gender disparity surprised researchers, Hu said.

"We had not previously seen a gender disparity in lead's impact on blood pressure, and had published studies showing that adult lead exposure was a risk factor for hypertension in both adult men and women" Hu said.

"But there's been an increasing amount of evidence for gender differences in susceptibility to environmental toxicants, and our study suggests this is true for offspring when the exposure is prenatal, meaning from mom's bones."

It's been long known that the prevalence of hypertension and heart disease differs between men and women, but scientists don't know why.

"This promises to shed light on causes of hypertension, for which there currently remains relatively little insight based on many genetic studies and other studies of risk factors in adults," Hu said.

The findings could mean that higher bone lead in mothers may result in increased risk of hypertension in the women, themselves, but also affect the cardiovascular health of their daughters, and it also highlights the need for secondary preventative measures, such as dietary calcium supplementation.

Hu noted that the study doesn't mean that boys are totally exempt from lead exposure in utero.

"Given that this is the first study to investigate these relationships using the methods we used, it really needs to be reproduced and in other populations before one can conclude that boys are less susceptible."

The study, "Association between Prenatal [Lead Exposure](#) and [Blood](#)

[Pressure](#) in Female Offspring," appears in advanced online publication in the journal *Environmental Health Perspectives*.

Provided by University of Michigan

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