Low-level arsenic may impact fetal growth, study finds

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Fetal growth may be impacted by low levels of arsenic that pregnant women consume in drinking water and food, a Dartmouth College study finds.

The study, which appears in the journal *Environmental Health Perspectives*, is one of the first to report that arsenic exposure during pregnancy at levels common in the United States is related to birth outcomes. A PDF is available on request.

Previous studies of populations with higher arsenic exposure suggest that in utero exposure is related to lower birth weight. But researchers at the Geisel School of Medicine at Dartmouth investigated the impact of low levels of in utero arsenic exposure on birth outcomes in a study based on a general U.S. population. They found that higher levels of mother's arsenic in their urine during the second trimester was related to decreased head circumference at birth. This finding is consistent with an earlier study by the same researchers that looked at head circumference measured in fetal ultrasound reports.

In the current study, researchers also found that mother's urinary arsenic levels were associated with infant's birth weight and birth length and that those associations varied by the mother's pre-pregnancy body mass index (body weight in kgs/height in cm^2) as well as the infant's sex. The study included more than 700 pairs of women and their newborns and therefore was large enough to identify such differences.

"Future research is needed to assess whether the relatively small differences we found correspond to meaningful differences in how infants and children grow and develop," says lead author Diane Gilbert-Diamond, an assistant professor of epidemiology.

Arsenic, which can contaminate our food and water supply, is a common metalloid on the earth's crust that is used for industrial purposes.

"This is a particular concern in rural regions where many people rely on private, unregulated drinking water," says senior author Margaret Karagas, professor and chair of Geisel's Department of Epidemiology. "People who use private wells need to have them tested for arsenic and other contaminants as recommended by their local public health agency."

Provided by Dartmouth College