PRESS RELEASE

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FOR PEOPLE WITH KIDNEY DISEASE, THERE IS NO SAFE AMOUNT OF LEAD IN DRINKING WATER

Study reveals that even low levels allowed by the Environmental Protection Agency can impact health.

Highlights

- In this analysis of U.S. adults with advanced kidney disease, even low levels of lead in community drinking water had a negative effect on health.
- Higher lead levels were found in the drinking water of predominantly Black communities compared with predominantly white communities.

Washington, DC (July 15, 2021) — Lead levels in drinking water that are permissible by the Environmental Protection Agency have detrimental health effects in individuals with kidney disease, according to a new study. The findings appear in an upcoming issue of *JASN*.

Despite advances in reducing the amount of lead in drinking water, low levels of contamination remain widespread throughout the United States. This may be especially dangerous for the 30-40 million Americans living with chronic kidney disease, who have heightened susceptibility to the toxic effects of lead.

To examine the effects of low levels of lead contamination on individuals with advanced kidney disease, investigators analyzed health information for 597,968 patients initiating dialysis in the United States between 2005 and 2017. The team also assessed lead concentrations in community water systems in the 5-year period prior to dialysis initiation, relying on city-level data from the Environmental Protection Agency's Safe Drinking Water Information System.

The investigators focused on the potential effects of lead on levels of hemoglobin, the oxygen carrying protein in red blood cells known to be effected by lead poisoning.

Individuals living in cities with detectable levels of lead in their community's water had significantly lower hemoglobin concentrations before starting dialysis and during the first month of dialysis therapy. They also were prescribed higher doses of medications to treat

anemia, which occurs when red blood cell counts or hemoglobin levels are lower than normal. These associations were observed at lead levels below the Environmental Protection Agency's threshold (0.015 mg/L) that mandates regulatory action.

The findings suggest that for patients with poor kidney function, there is no safe amount of lead in drinking water. "While drinking water may seem uniformly healthy, low levels of lead contamination found in the majority of drinking water systems in the United States may have toxic effects for those with chronic kidney disease," said lead author John Danziger, MD, MPhil, of Beth Israel Deaconess Medical Center. "More rigorous efforts to improve the water system infrastructure may be needed to protect individuals from unrecognized hazard."

Importantly, the study also revealed concerning inequities, with higher water lead levels observed for Black compared with white patients. "Combined with the increased susceptibility to kidney disease among Blacks, this represents an important environmental injustice," said Dr. Danziger.

Study co-authors include Eric Weinhandl PhD, MS and Kenneth J. Mukamal, MD, MPH.

Disclosures: The authors reported no financial disclosures.

The article, titled "Associations of Lead Concentrations in Drinking Water with Hemoglobin Concentrations and Erythropoietin Stimulating Agent Use Among Patients with Advanced Chronic Kidney Disease," will appear online at http://jasn.asnjournals.org/ on July 15, 2021, doi: 10.1681/ASN.2020091281.

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