PRESS RELEASE

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AIR POLLUTION FROM WILDFIRES LINKED TO HIGHER DEATH RATES IN PATIENTS WITH KIDNEY FAILURE

Highlight

- Exposure to higher amounts of fine particulate air pollution was associated with higher death rates among patients with kidney failure.

Washington, DC (July 16, 2020) — New research suggests that individuals with kidney failure may face a higher risk of dying prematurely if they're exposed to air pollution from wildfires. The findings appear in an upcoming issue of *JASN*.

Wildfires generate high levels of tiny particles of air pollution—called fine particulate matter—that can have a range of effects on health. When inhaled, fine particulate matter can travel into the respiratory tract and bloodstream and trigger oxidative stress and inflammation. Because of their frailty, patients with kidney failure might be especially susceptible to this environmental stressor, but little is known about the effects of air pollution exposures in these individuals.

To investigate, a team led by Ana Rappold, PhD (the US Environmental Protection Agency), along with Yuzhi Xi, MSPH and Abhijit V. Kshirsagar, MD, MPH (University of North Carolina at Chapel Hill), analyzed information from 253 US counties near a major wildfire between 2008 and 2012.

"This study was possible because the US Renal Disease System, a registry of patients with kidney failure, included vital records on almost all US patients receiving in-center hemodialysis, as well as the counties of the dialysis clinics. Secondly, we utilized an air quality model to estimate daily exposure to wildfire fine particulate matter across the country at the counties of the dialysis units," explained Ms. Xi.

The researchers found 48,454 deaths among patients with kidney failure who were receiving dialysis in the 253 counties. Each 10 $\mu g/m^3$ increase in the concentration of wildfire fine particulate matter in the air was associated with a 4% higher death rate on the same day and a 7% higher rate over the next month. On days with wildfire fine particulate matter greater than 10 $\mu g/m^3$, exposure to the pollution accounted for 8.4% of daily mortality.

“The findings highlight the impact of air pollution exposure in individuals receiving hemodialysis, and they support the need for more research to develop and implement interventions to manage exposure during wildfire smoke episodes in this population,” said Dr. Rappold.

Study co-authors include Timothy J. Wade, PhD, David B. Richardson, PhD, M. Alan Brookhart, PhD, and Lauren Wyatt, PhD.

Disclosures: The authors reported no financial disclosures.

The article, titled “Mortality in US Hemodialysis Patients Following Exposure to Wildfire Smoke,” will appear online at http://jasn.asnjournals.org/ on July 16, 2020, doi: 10.1681/ASN.2019101066.

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