

Residents of most polluted US cities have increased risk of dry eye syndrome

November 17 2013

Residents of major cities with high levels of air pollution have an increased risk of dry eye syndrome, according to a study presented at the 117th Annual Meeting of the American Academy of Ophthalmology, in New Orleans. Study subjects in and around Chicago and New York City were found to be three to four times more likely to be diagnosed with dry eye syndrome compared to less urban areas with relatively little air pollution. As a result of this study, researchers suggest that environmental manipulations should be considered as part of the overall control and management of patients with dry eye syndrome.

Dry eye syndrome, a deficiency in tear production, is a prevalent condition that effects up to four million people age 50 and older in the United States and whose manifestations negatively affect physical and mental functioning. The symptoms of [dry eye syndrome](#) can be very detrimental to patients and severely affect the quality of one's life, as well as result in loss of productivity due to interruption of daily activities like reading and using computer screens. While it has been suggested that environmental factors impact [dry eye](#) syndrome, this is the first study of a large patient population covering the entire continental United States which linked dry eye syndrome treatment location to atmospheric conditions – in particular, [air pollution](#) coupled with weather conditions.

Using data from the National Veterans Administrative (VA) database, the National Climatic Data Center and National Aeronautics and Space Administration (NASA), the researchers examined the health records of 606,708 U.S. veterans who received dry eye syndrome treatment in one

of 394 VA eye clinics within the continental U.S. from July 2006 through July 2011. Those living in areas with high levels of air pollution had the highest magnitude of increased risk for dry eye syndrome, at an incidence rate ratio of 1.4. Most metropolitan areas, including New York City, Chicago, Los Angeles and Miami showed relatively high prevalence of dry eye syndrome (17-21%) and high levels of air pollution.

Additionally, the risk of dry eye syndrome was 13 percent higher in zip codes in high altitude areas. Higher humidity and wind speed were inversely associated with the risk of dry eye syndrome when controlled for air pollution and other weather conditions. The research findings suggest that primary care physicians and eye care professionals should be aware of the association between environmental conditions and dry eye, and elicit an environmental history when assessing patients with dry eye syndrome.

"Undoubtedly, many people living in arid and polluted cities would readily attest to the irritating effect air pollution has on dry eye," said Anat Galor, M.D., MPPH, of Miami Veterans Affairs Medical Center, Assistant Professor of Clinical Ophthalmology Bascom Palmer Eye Institute, and lead researcher. "Our research suggests that simple actions, such as maintaining the appropriate humidity indoors and using a high-quality air filter, should be considered as part of the overall management of patients suffering from dry eye syndrome."

Dry eye symptoms can range from stinging or burning to excessive tearing and discomfort wearing contact lenses. As the eye responds to the irritation of this condition, the eye will often tear excessively to try to combat the loss of moisture. Many people with dry eye syndrome may find watching television, reading and working for extended periods on a computer to be very uncomfortable. For relief from dry eye syndrome, the American Academy of Ophthalmology advises people to visit an

ophthalmologist to determine the best course of treatment.

Provided by American Academy of Ophthalmology

Citation: Residents of most polluted US cities have increased risk of dry eye syndrome (2013, November 17) retrieved 13 May 2024 from <https://medicalxpress.com/news/2013-11-residents-polluted-cities-eye-syndrome.html>

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