National Institute of Environmental Health Sciences

Weather and air pollution as triggers of severe headaches

Author(s): Mukamal KJ, Wellenius GA, Suh HH, Mittleman MA
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Abstract:

BACKGROUND: The roles of weather conditions and air pollution as triggers of headache have been inconsistent in previous, generally small studies. METHODS: We performed a case-crossover study of 7,054 patients seen in a single emergency department between May 2000 and December 2007 with a primary discharge diagnosis of headache. We compared levels of temperature, barometric pressure, humidity, fine particulate matter, black carbon, and nitrogen and sulfur dioxides during the three 24-hour periods preceding presentation with corresponding levels on the remaining occurrences of that day of the week in a given month, using local meteorologic and pollutant monitors. RESULTS: Higher mean ambient temperature in the 24 hours preceding hospital presentation positively and linearly increased the acute risk of headache (odds ratio [OR] for a 5 degrees C increment 1.075; 95% confidence interval [CI], 1.021-1.133; p Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.006) [corrected]. Higher risk was observed for cases with and without a discharge diagnosis of migraine and for cases between October and March or between April and September. Lower barometric pressure also increased the risk of nonmigraine cases in the 48 to 72 hours before hospitalization (OR 0.939 per 5 mm Hg; 95% CI, 0.902-0.978; p Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.002). Current levels of pollutants did not influence the risk of headache. CONCLUSIONS: Higher ambient temperature and, to a lesser degree, lower barometric pressure led to a transient increase in risk of headache requiring emergency department evaluation. We did not find clear association of air pollutants with risk, but cannot exclude effects of air pollution of the magnitude previously observed for stroke and other cardiovascular events.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2677474

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Meteorological Factors

Air Pollution: Interaction with Temperature, Particulate Matter, Other Air Pollution

Air Pollution (other): NO2, SO2, black carbon

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal, Urban

Geographic Location: ☒

resource focuses on specific location

United States

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Other Health Impact

Other Health Impact: headache

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified