

Air Pollution and Hospitalization for Acute Complications of Diabetes in Chile

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Abstract

Exposure to air pollution has been shown to cause insulin resistance in mice. To determine the relevance to humans, we tested the association between daily air pollution concentrations and daily hospitalization for acute serious complications of diabetes, coma and ketoacidosis, in Santiago between 2001 and 2008, using generalized linear models with natural splines to control for long term trends.

For an interquartile range (IQR) increase in air pollutant, the relative risks (95% CI) of hospitalization for diabetes were: 1.15 (1.10, 1.20) for carbon monoxide (IQR = 1.00); 1.07 (0.98, 1.16) for ozone (IQR = 63.50); 1.14 (1.06, 1.22) for sulfur dioxide (IQR = 5.88); 1.12(1.05, 1.20) for nitrogen dioxide (IQR = 27.94); 1.11 (1.07, 1.15) for particulate matter $\leq 10 \mu\text{m}$ diameter(IQR = 34.00); and 1.11 (1.06, 1.16) for fine particulate matter $\leq 2.5 \mu\text{m}$ diameter (IQR = 18.50).

Results were similar when stratified by age, sex and season. Air pollution appears to increase the risk of acute complications of diabetes requiring hospitalization, suggesting that improvements in air quality may reduce morbidity from diabetes. Crown Copyright (C) 2012 Published by Elsevier Ltd. All rights reserved.

Keywords

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