

Effect of air pollution in children health: Perspectives for prevention.

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Air pollution has been linked to adverse effect in children particularly among children with preexisting respiratory disease such as asthma. Increased in symptoms, emergency visits, acute decrease in pulmonary function and increase in inflammatory response has been documented. Air pollutant related to traffic exhaust appears to be the most toxic. Children residing close to high traffic roads have been shown to have a higher rate of respiratory symptoms and inflammatory response as well as higher markers of oxidative stress in exhaled breath than children less exposed to vehicular traffic. In addition, there is now some data on the long term effect of air pollution exposure and studies in the US, Europe and Mexico have shown that children exposed chronically to air pollution had a decrement in lung growth. This decrement appears to persist over time suggesting that these children will reach adulthood with impaired respiratory functions. Because of the role of air pollutants as inducer of oxidative stress, the nutritional status, in particular with regard to antioxidant vitamin is important to consider. We have shown that antioxi-

dants (vitamin C and E) supplementation in asthmatic children could modulate the adverse effect of ozone on their respiratory functions. In addition we have shown that some genetic factors could also modulate the effect of air pollutants on respiratory health. Children with GSTM1 null and the GSTP1 Val genotype were more susceptible to the effect of air pollutants. Supplementation with antioxidant partly removed this susceptibility. Based on these scientific findings, it is important to provide preventive measures to decrease the adverse effect of air pollution exposure on children health. While strict control measures need to be applied to decrease air pollution exposure, it is important to promote preventive measures such as information on the effect of air pollution, measures to decrease exposure such as avoiding school close to highways, limit exercise at time with air pollution peaks, and improve nutrition in particular with foods with high content of vitamin C. The community as a whole need to be empowered in order to solicit and support the policies measures necessary for air pollution prevention and control.

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