

Air Pollution linked to High rate of Asthma among Children

Asthma is one of the common chronic respiratory diseases in children. There have been evidences suggested the link between asthma morbidity and outdoor air pollution levels. The Department of Paediatrics and Adolescent Medicine of HKU Li Ka Shing Faculty of Medicine thus performed a population-based time series analysis on daily hospital admission counts for asthma, a proxy for severe asthma attack in children, with outdoor air pollutants concentrations from 1997 to 2002 in Hong Kong.

It was found that there were significant associations between childhood asthma hospital admission counts with ambient levels of nitrogen dioxide NO₂, ozone O₃, particulate matter with aerodynamic diameter less than 10 micrometers PM₁₀ and particulate matter with aerodynamic diameter less than 2.5 micrometers PM_{2.5}. An increase of 5.64% of daily asthma admission count was attributed by an increase in the level of NO₂, 3.76% by O₃, 3.67% by PM₁₀ and 3.24% by PM_{2.5}.

Although the impact of the study appears to be “small”, the risk implied to the whole population is substantial. During the 6-year study period, the mean daily asthma admission count for children aged 18 or below is around 12. The added effect of increased levels of NO₂, O₃, PM₁₀ would lead to 13% increase in daily asthma admission. If ambient level of these pollutants were reduced by an average of around 50%, it could have cut down around 3,400 hospital admissions for asthma in children. In addition, no threshold for any of the air pollutants could be established for asthma admission. There is a need for policy makers to develop more stringent air quality objectives and take high risk groups into consideration such as elderly and those with chronic respiratory or cardiovascular illnesses.