

The Assessment of Air Pollution Exposure and Paracetamol Use Related to Children Allergic Disease: A Population-Based Cohort Study in Taiwan

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Abstract

In Taiwan, there are nearly 70 % people living in the urban areas which have more serious air pollution year by year. It causes that the prevalence of children allergic disease increases every year. Recently, there are many studies showing that air pollution is a significant risk factor to cause allergic disease. In Taiwan, paracetamol is the most common drug to decrease pain, because paracetamol causes less stomach irritation than aspirin. But there are some studies showing that paracetamol is a risk factor of allergic disease. The objective of this study is to assess air pollutants exposure and paracetamol use related to children allergic disease. There were two databases used in this study: 1) Longitudinal Health Insurance Database 2005 (LHID2005) and 2) Environmental Protection Agency (EPA) air monitoring database. Geographic Information Systems (GIS) was used in estimating air pollution exposure. Paracetamol use and children allergic disease records were collected by LHID2005. Furthermore, we used cox proportion regression models to estimate the relationship between air pollution, paracetamol use and children allergic disease. The results showed that air pollution and paracetamol use individually increased the risk of children allergic disease. Furthermore, patients who were using paracetamol and exposed to air pollution had more serious effects on children allergic disease. It is necessary to protect children from the adverse effects of air pollution, especially considering the potential interaction with paracetamol use.

Keywords: Children allergic disease; Paracetamol; Air pollution; Longitudinal Health Insurance Database 2005(LHID2005)