

**PERSONAL EXPOSURE TO AMBIENT FINE PARTICLES (PM<sub>2.5</sub>) IS ASSOCIATED WITH NASAL INFLAMMATION IN ASTHMATIC CHILDREN LIVING IN PARIS****L. Nikasinovic<sup>1</sup>**, F. Sahraoui<sup>2</sup>, J. Just<sup>2</sup>, N. Seta<sup>2</sup>, A. Grimfeld<sup>2</sup>, I. Momas<sup>1</sup><sup>1</sup>*Laboratoire D'Hygiène Et De Santé Publique, Faculté Des Sciences Pharmaceutiques Et Biologiques, Université René Descartes, Paris, France*<sup>2</sup>*Service De Pneumologie Et Immuno-Allergologie Clinique Pédiatrique, Hôpital D'Enfants Armand Trousseau, Assistance Publique-Hôpitaux De Paris, Paris, France*

In urban areas, outdoor air pollutants are suspected to induce harmful effects on respiratory health, rising the question of their involvement in allergic asthma and rhinitis. The aim was to examine the potential effect of exposure to two major outdoor pollutants resulting from vehicle emissions, particulate matter less than 2.5 µm diameter (PM<sub>2.5</sub>) and nitrogen oxides (NO<sub>x</sub>) on nasal inflammation, in healthy and asthmatic children living in Paris. Forty-five children with allergic asthma and 46 healthy children were enrolled. They were monitored during 48h for their personal exposure to PM<sub>2.5</sub> and to NO<sub>x</sub>. At the end of the 48h measurement period, children underwent a nasal lavage to investigate nasal cells (neutrophils, eosinophils) and soluble biomarkers (albumin, urea, uric acid, elastase, α1-antitrypsin, ECP, IL-4, IL-5, IL-6, IL-8, GM-CSF). The mean personal PM<sub>2.5</sub> and NO<sub>x</sub> values were, respectively  $30.6 \pm 25.0$  and  $57.2 \pm 35.5$  µg/m<sup>3</sup> for asthmatics and  $42.0 \pm 59.5$  and  $49.8 \pm 23.9$  µg/m<sup>3</sup> for healthy children. After adjustment for confounders (urinary cotinine, pollen counts, house-dust mite, ...), personal PM<sub>2.5</sub> levels were highly correlated to nasal neutrophil and eosinophil counts and to albumin, urea and α1-antitrypsin concentrations in asthmatics, but not in healthy children. Personal PM<sub>2.5</sub> exposure, at levels commonly encountered in urban areas, is related to neutrophilic and eosinophilic inflammation in children with allergic asthma, supporting recent speculations on diesel exhaust particles involvement in allergic phenotype over-expression.