

Brussels, 27 February 2007.

## **Understanding mechanisms of common colds: a new approach to help control asthma attacks**

*In an article published today (27 February) in the journal Allergy, experts in the Global Allergy and Asthma European Network (GA<sup>2</sup>LEN) suggest that respiratory infections are a main trigger of asthma attacks. Scientists now need to understand the differences between the response to a common cold and air pollution in asthmatics compared with non-asthmatics patients with a view to figure out mechanisms of asthma exacerbations.*

“Understanding the mechanism that allows non-asthmatics to deal with the common cold could constitute a new approach to help prevent and control asthma attacks,” says Dr. Papadopoulos lead author of the publication (1) and chairman of the recent GA<sup>2</sup>LEN workshop on asthma and rhinitis exacerbations (2).

The review paper presents evidence showing that most asthma attacks follow common colds and other respiratory infections. In some cases, the common cold is the unique precursor of wheezing and associated symptoms, particularly among children.

“Over the years, chronic asthma has become treatable,” says Dr Papadopoulos. “But prevention of acute (and sometimes lethal) attacks remains very difficult – and it is these attacks that cause the pain and anxiety that make asthma so difficult to live with.”

New studies demonstrate that allergens and air pollution, such as car fumes and tobacco smoke, appear to complicate the asthmatic’s reaction to viruses and prompt stronger and more immediate asthma attacks.

An increase of nitric oxide (NO<sub>2</sub>) in the air contaminated by car fumes leads to more hospital admissions according to the APHEA project (Air pollution on Health: European Approach). Children exposed to increased levels of NO<sub>2</sub> also suffer more from sore throats, colds and are more absent from school.

### **Triggers in the air**

The article suggests that irritants in the air, such as car fumes, tobacco smoke and aeroallergens - exacerbate asthma attacks. According to the 15 city APHEA project (Air pollution on Health: European Approach), hospital admissions increase by 2.6% in the hour following a 50 µg/m<sup>3</sup> increase of nitric oxide (NO<sub>2</sub>) in environmental air contaminated by car fumes.

When asthmatic children are exposed both to a virus and to NO<sub>2</sub>, infection rates are increased and the severity of the asthma symptoms are greater the higher exposure to this pollutant.

These findings are consistent with infection studies among those who smoke. Smokers have an increased risk of more frequent common colds, and their condition lasts longer. Children with

colds who are exposed to environmental tobacco smoke (ETS) face an increased risk of wheezing and hospitalization due to asthma.

Data shows that exposure to an allergen can exaggerate the irritant effect of a virus infection in asthmatics. The paper cites a study in which patients with mild rhinitis (hay fever) and/or asthma were experimentally infected with the rhinovirus (virus causing the common cold) and then exposed to an allergen. The result was stronger reactions and a higher risk of late asthmatic responses.

Studying the outbreak and evolution of a common cold in asthmatics is an important tool for investigating the process leading to an asthma attack. In both asthmatics and non-asthmatics, a respiratory infection damages the cells on the surface of the airways and prompts reactions in the immune and the nervous system. Dr. Papadopoulos and his colleagues say that understanding the differences in the response may be important.

“Healthy adults have a fast and efficient mechanism to clear the invading pathogen associated with the common cold,” says Dr. Papadopoulos. “By following infected asthmatic individuals, we may be able to identify how that mechanism differs from a non-asthmatic reaction. This would help us understand how to prevent the hyper-responsive reactions that lead to asthma attacks.”

### Notes for journalists

1. “Mechanisms of virus-induced asthma exacerbations: state-of-the-art”, *Allergy* OnlineEarly articles <http://www.blackwell-synergy.com/toc/all/0/0>
2. “Unanswered questions on asthma and rhinitis exacerbations: A GA<sup>2</sup>LEN workshop report”  
<http://www.ga2len.net/index.cfm?action=viewEventDetails&eventID=225&archiveEvents=1&viewRapport=1>
3. **GA<sup>2</sup>LEN – the Global Allergy and Asthma European Network** is a “Network of Excellence” funded by the European Union. It consists of 26 research centres, as well as the European Academy of Allergology and Clinical Immunology (EAACI) and the European Federation of Allergy Patients Associations (EFA). [www.ga2len.net](http://www.ga2len.net)

### Contact: GA<sup>2</sup>LEN Dissemination

Tel: +32 2/640.77.80

AWComm@ga2len.net