



## EDITORIAL

# Allergic rhinitis and asthma: one disease of two organs

## *Rhinite allergique et asthme: une maladie pour deux organes*

S. Duong-Quy

Lam Dong Medical College, 16 Ngo Quyen. Da Lat, Viet Nam  
Penn State University, 500 University Drive, Hershey, PA, USA  
Paris Descartes University, France

### **The upper and lower airways is a single organ**

In human physiology, for each breath, the air passes through the airways via nasal fossae, sinuses, pharynx, larynx, trachea, bronchial tubes and bronchioles. With the normal condition, the airways are covered of a mucous membrane that, in people suffering of airways allergy, reacts to the presence of airborne allergen such as pollens, house dust mites, hair and excrements of dogs, cats or rodents, etc., particularly presenting in the nasal cavity, sinuses and bronchi and bronchioles. This inflammatory reaction is due to the production of, under the influence of chemical substances secreted locally, the mediators of inflammation. That why in their pathophysiology, allergic rhinitis and asthma have the same inflammatory mechanism.

### **The common mediators of airways inflammation**

Under the effect of the airborne allergens, the inflammatory cells such mast cells, eosinophils, or basophils present in the lining of nasal cavities and bronchi secrete several chemical mediators. The main mediators are histamine, leukotrienes, and pro-inflammatory cytokines and cytokines. They are responsible for symptoms related to allergic inflammation including rhinorrhea, nasal pruritus and sneezing, and nasal congestion for allergic rhinitis, or wheezing for asthma.

### **Respiratory allergy is a disorder condition of two faces**

The inflammatory mediators' action will result in symptoms vary according to the affected organ: the nose for allergic rhinitis and the bronchial tree for asthma. The nasal fossae and sinuses are very rich in blood vessels that why local inflammation may cause of the sneezing, the sensation of having a

stuffy nose (or nasal congestion), headache, and running nose (or rhinorrhea). That is the main symptom of allergic rhinitis. However, in the bronchi and bronchioles, the airways inflammation results in cough, mucus production and contraction of smooth muscle fibers inducing the reduction of the diameter of the bronchi and bronchioles, and causing the asthma attack.

### **Simultaneous treatment is recommended for allergic rhinitis and asthma**

Previous studies showed that more than 60% of patients with asthma having concomitant allergic rhinitis and who had allergic rhinitis may also develop asthma in disease evolution [1]. Today, medical authorities recommend to treat the various events simultaneously respiratory allergy. Among asthmatic patients who suffer from allergic rhinitis, treatment to control asthma should to be accompanied by a treatment against allergic rhinitis. Indeed, the presence of allergic rhinitis symptoms may increases the risk to develop an asthma attack. The treatment strategy is based on the prescription of drugs against local inflammation and on elimination (eviction) of the allergen when this is achievable.

In the number 24 of JFVP journal [2], Ade et al. aimed to determine the prevalence of asthmatic patients in Parakou, associated with allergic rhinitis manifestations. This study included 118 children aged 6-14 years and 277 adults aged  $\geq 15$  years. The questionnaire of the study "International Study of Asthma and Allergies in Childhood" was used. Among 118 children aged 6-14 years: 5.1% had had wheezing in the past, 3.4% had symptoms of asthma in the past 12 months. They all had associated symptoms of allergic rhinitis.

*Corresponding author: Dr. Sy DUONG-QUY. Penn State Medical University – USA. Paris Descartes University. Lam Dong Medical College. Email: sduongquy.jfvp@gmail.com*

Significant variability was found in 19% of patients with asthma symptoms or a previous diagnosis of asthma. In the 277 adults  $\geq 15$  years, there was 3.6% had symptoms of asthma. Symptoms of allergic rhinitis were associated in 80% of cases.

Household dust and automobile pollution were the main triggers found in 92.9% and 78.6, respectively. The author concluded that the prevalence of symptoms of bronchial asthma is not too high in the in adults and children aged between 6 and 14 years.

#### CONFLICT OF INTEREST

Non.

#### REFERENCES

1. Duong-Quy S, Vu-Minh T, Hua-Huy T, et al. Study of nasal exhaled nitric oxide levels in diagnosis of allergic rhinitis in subjects with and without asthma. *J Asthma Allergy* 2017;10:75-82.
2. Ade. S, Flatin. MC , Dovonou. AC, Ametonou. B, Fanou. L, Allasani. A, Sake. K, Attinsounon. CA. *J Func Vent Pulm* 2017;24(8):24-28.