1 What are the main airway allergies and what is their prevalence globally?
Allergic rhinitis is an IgE-mediated chronic inflammation of the nose. Asthma is a chronic inflammatory disease of the lower airways that can also be caused by IgE-mediated inflammation, especially in children. Allergic rhinitis affects 400 million people and asthma affects 300 million people globally and the prevalence rates of both allergic rhinitis and asthma are increasing in both developed and developing countries. The World Health Organization (WHO) has estimated that by 2025 four hundred million people in the world will suffer from asthma.

2 What is the connection between allergic rhinitis and asthma?
Allergic rhinitis is a risk factor for asthma. Prevalence of asthma in patients with rhinitis ranges from 10 to 40%; conversely up to 80% of patients with persistent asthma have allergic rhinitis.

3 What are the links between the upper and lower airways?
Asthma and rhinitis are manifestations of a syndrome that is linked by several factors, the chronic allergic respiratory syndrome. Allergic rhinitis and asthma have epidemiological, pathophysiological, immunological links and share a similar inflammatory process. Treating allergic rhinitis has been shown to improve asthma. Sub-clinical bronchial inflammation and hyperactivity can also be found in patients with allergic rhinitis, even in the absence of lower respiratory tract symptoms.

4 What are the triggers and aggravating factors of allergic rhinitis?
Besides indoor allergens (house dust mites, pet dander, molds, cockroach allergen) and outdoor allergens (pollens from trees, grass and weeds) a variety of other factors like environmental pollutants (indoor tobacco smoke and chemicals) and outdoor air pollution resulting from vehicular emissions, diesel exhaust particles and industrial pollutants can aggravate allergic rhinitis and asthma. Nonsteroidal anti-inflammatory drugs (NSAIDs) (e.g. Aspirin) are also triggers.

5 What is most important to know if the conditions are not controlled?
The most common symptoms of allergic rhinitis are sneezing, runny nose, nasal congestion, nasal and ocular itching and watering of the eyes. Other associated symptoms include headache, facial and ear pain. Patients with asthma typically experience recurrent episodes of wheezing, difficulty in breathing, chest tightness and cough, particularly at night or early morning. Other comorbidities of allergic rhinitis include: sinusitis, conjunctivitis, otitis media with effusion, upper respiratory infections, and sleep disorders.

6 How can airway allergies impair quality of life?
When uncontrolled, asthma was reported to be slightly higher in patients with allergic rhinitis compared with patients with asthma, social functioning was lower in the allergic rhinitis group. Comorbid allergic rhinitis and asthma can markedly affect the quality of life of the patients.
What are the human and economic burdens of airway allergies?

Allergic rhinitis and asthma are a major socio-economic burden and reduce work productivity, learning performance and interfere with social interactions. It also has psychological effects, and creates a burden not only for the affected subject, but for the family and for the society at large.

Co-morbid allergic rhinitis in asthmatics is associated with higher total annual medical costs, greater prescribing frequency of asthma-related medications and increased likelihood of hospitalizations and emergency visits e.g. 9.

Allergic rhinitis is a risk factor for asthma. Moreover, under-diagnosis and inadequate treatment of allergic rhinitis can worsen coexisting asthma leading to a greater public health problem, even in low and middle income countries.

What can be done to improve quality of life for patients who suffer from airway allergies?

Management is based on patient education, environmental control measures (allergen avoidance etc.), medications to control symptoms and allergen-specific immunotherapy 1, 10.

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Key References