

Comorbidities of asthma and the unified airway

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Background: Asthma is a comorbid condition that may be seen by otolaryngic allergists when treating their patients with allergic rhinitis (AR). Often asthma is overlooked when aggressive treatment could prevent the development or progression of early disease.

Methods: This article is a retrospective review of the current literature on asthma as a comorbidity of the unified airway. The unified airway and asthma are clearly defined. The epidemiology, morbidity, mortality, pathophysiologic mechanisms, and the chronicity of asthma are reviewed.

Results: The otolaryngic allergist will become familiar the unified airway concept and the close relationships between AR, chronic rhinosinusitis, and asthma.

Conclusion: Otolaryngologists should be aware of the unified airway in order to most effectively treat their patients

with AR. Knowledge of the close relationships between asthma and AR will help prevent progression of disease, identify early asthma, and improve the outcomes and quality of life for our patients. © 2015 ARS-AAOA, LLC.

Key Words:

asthma; unified airway; allergy; rhinitis; chronic rhinosinusitis; allergic rhinitis

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Asthma is perhaps the most overlooked diagnosis in the field of otolaryngology–head and neck surgery. Clinicians need to be able to recognize the complex interrelationships that coexist between asthma and allergy due to the unified airway. Both diseases are very similar, and if managed appropriately, stop the progression to more advanced disease.

The unified airway model

The unified airway concept^{1–3} has been popular over the last 20 years. This concept closely links the middle ear, nose, and paranasal sinuses, all the way down to the distal bronchioles, as one functional group or unit. Rhinitis, sinusitis, and asthma are closely linked epidemiologically and pathophysiologically. There is shared inflammation that occurs

due to close communication among cellular and humoral components of the immune system.^{4,5} Braunstahl et al.⁴ showed propagation and sustained responses locally, regionally, and systemically when one discrete area of the respiratory tract was stimulated. Distal inflammatory effects subsequently ensued, far away from the initial inciting event. This implies that exacerbations of disease in one area will lead to concurrent or subsequent worsening of disease in other respiratory units.⁶ Allergic respiratory disease thus affects the entire upper and lower aerodigestive tract, linking allergic rhinitis (AR) with asthma in various severities.⁶ Patients with upper airway disease have a higher prevalence of lower-tract disease. Conversely, those with lower-tract disease have an increased incidence of upper airway involvement. Thus, any intervention in either tract will influence symptoms in the other.³

Asthma defined

Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms, such as wheezing, shortness of breath, chest tightness, and cough, that vary over time and in intensity, together with variable expiratory airflow limitation.⁷ The symptoms and airflow limitation may vary over time and in intensity. These variations can be caused

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