

Allergic Rhinitis and Asthma

Allergic rhinitis and asthma are two very common conditions, which frequently co-exist. UK epidemiological studies have revealed sharp increases in the prevalence of these conditions over the latter half of the 20th Century and have also found that the UK prevalence of allergic rhinitis and asthma is amongst the highest in the world.^{1,2} The increasing realisation that allergic rhinitis and asthma share a number of anatomical, epidemiological and pathological characteristics has, for some time now, suggested that the two conditions may be directly linked and this argument has recently been formally developed by the World Health Organization's Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines which have advanced the 'one airway, one disease' model.³ This opinion sheet seeks to summarise the key literature on the nature of the relationship between allergic rhinitis and asthma

What is the evidence that allergic rhinitis and asthma are inter-linked?

The upper and lower airways are anatomically connected and the mucosal linings of the nose and bronchi share similar histologies pointing to a possible direct relationship between these two organs. The two conditions share epidemiological similarities in that both demonstrate broadly similar international patterns and trends in disease prevalence over time. These population data are however difficult to interpret as they are subject to the impact of a range of potential confounding factors. More revealing however are the many studies that have now shown that these conditions very frequently co-exist, for example, in up to 80% of those

with asthma.⁴ We are now also aware that within individuals with co-morbidity upper and lower airway symptoms are frequently provoked by exposure to the same allergic and non-allergic environmental triggers. Also noteworthy is that laboratory studies involving provocation testing have revealed that stimulation of the upper airways can lead to inflammation of the lower airways and vice versa following provocation of the lower airways.⁵ There is also encouraging evidence from intervention studies which show that leukotriene receptor antagonists may simultaneously treat upper and lower airways inflammation in those with co-existent disease.⁶ Finally, there is also anecdotal evidence from clinicians to suggest that in those with co-existent disease, adequate control of allergic rhinitis is often an essential pre-requisite to achieving asthma symptom control, this being supported by a recent analysis of routine UK data which suggests greater morbidity in patients with asthma who have documented co-existent allergic rhinitis.⁷

What is the evidence that treating allergic rhinitis improves asthma outcomes?

Systematic reviews of the literature have shown that intranasal corticosteroids are highly effective and safe treatments for allergic rhinitis.^{8,9} In order to try to better understand the relationship between allergic rhinitis and asthma, a number of researchers have experimentally investigated the impact of intranasal corticosteroids on asthma. Data from 14 randomised controlled trials involving 477 patients have recently been summarised in a Cochrane systematic review.¹⁰ Although this revealed a trend towards improvement in clinical and

physiological outcomes for asthma this failed to reach statistical significance leading the reviewers to conclude that in those with co-existent upper and lower airways inflammation, inhaled treatments via both the intranasal and intrabronchial routes are indicated. There is thus as yet no definitive evidence that treating allergic rhinitis will have a direct impact on asthma outcomes.

Diagnosis of allergic rhinitis and asthma

The diagnosis of allergic rhinitis is in the main made by taking a thorough clinical history. Patients experience a symptom complex comprising of rhinorrhea, sneezing, nasal congestion and nasal itching, which typically last for an hour or more on most days.³ It is helpful to determine whether symptoms are intermittent or persistent, these mapping in many parts of the world (although not invariably) with the older classification of seasonal and perennial rhinitis. The history should also seek to ascertain the severity of the disease through assessing the impact on activities of daily living.

Examination of the nose may reveal a typically inflamed nasal mucosa, hypertrophied turbinates and the classic 'salute' across the nasal bridge.

Once allergic rhinitis has been diagnosed it may be helpful to try and identify the allergens responsible for provoking symptoms as in some cases allergen avoidance may be possible and helpful.¹¹ Confirmation of the provoking aero-allergen is possible in primary care through skin prick testing and measurement of serum specific IgE.

Asthma is also diagnosed primarily through the history of wheezing, breathlessness, chest tightness and coughing, which are often worse at night and exacerbated by exercise or other (allergic and non-allergic) environmental triggers. The examination is however often normal, although demonstration of airway variability, hyper-responsiveness and/or reversibility are very helpful in trying to secure a diagnosis. Guidelines of direct relevance to primary care have recently been published on this subject.¹²

Management of allergic rhinitis and asthma

Both allergic rhinitis and asthma can result in significant morbidity and in the case of asthma may also result in mortality. Detailed evidence-based guidelines on the management of these conditions have been published elsewhere, but what is particularly relevant to note in the context of this discussion is that such is the frequency of co-morbidity between the two conditions that the identification of one condition should lead to a systematic search for the other condition. In all but the mildest of cases, treatment should focus on controlling the underlying inflammation with regular use of topical corticosteroids and other anti-inflammatory agents and symptomatic treatments in order to minimise the impact on day-to-day life.

Gaps in knowledge

Although many associations have been suggested as to the link between allergic rhinitis and asthma there are still as yet no conclusive

data to fully support the idea that allergic rhinitis and asthma represent different manifestations of the same disease. Further research is also needed to investigate the suggestion that early diagnosis and aggressive management of allergic rhinitis might lead to a reduction in the risk of developing asthma. We also still need to find improved ways of implementing the findings of guidelines into routine care.¹⁰ ■

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