

Practice guided learning

KEYWORDS ALLERGIC RHINITIS | ASTHMA | RESPIRATORY CARE

Allergic rhinitis: background, symptoms, diagnosis and treatment options

Outlining the symptoms, diagnosis and various treatment options for patients with allergic rhinitis as well as its prevalence and significant co-morbidities

AUTHOR Glenis K. Scadding, FRCP, MD, is consultant allergist and rhinologist, Royal National Throat, Nose and Ear Hospital, London.

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This one-part unit outlines the symptoms, diagnosis and various treatment options for allergic rhinitis. It also highlights nurses' roles in the management of this common condition.

INTRODUCTION

Allergic rhinitis (AR) is an IgE-mediated eosinophilic inflammatory disorder of the nasal mucosa, typified by symptoms of nasal itch, sneeze, running and blockage.

Sometimes it is obvious, as in hay fever, when affected people sneeze, have a runny, itchy nose and often red, irritated eyes. Sometimes it is hidden – usually when a perennial allergen causes persistent symptoms and the patient has a blocked nose and post-nasal discharge (the accumulation of mucus in the throat or back of the nose).

The condition is the most prevalent long-term allergic disease in children, affecting about 40% by the age of six. It is often undiagnosed in children (parents often mistake it for a cold) and inadequately treated. It also affects 26% of the UK adult population.

Impact of rhinitis

Quality of life is reduced in moderate to severe rhinitis. In particular, it affects sleep, which in turn affects daytime performance at school, including exam results, and at work. The condition also has significant co-morbidities: sinusitis; pharyngitis; otitis media with effusion; and asthma (Bousquet et al, 2001).

Rhinitis is present in most people with asthma, including children, and usually precedes asthma by a few years. Those with

rhinitis are around three times more likely to develop asthma than people without the condition; if they are allergic to house dust mites, the risk is higher.

Patients with AR have increased bronchial hyper-reactivity to allergens and to chemicals such as histamine and methacholine. This is reduced by anti-inflammatory treatment to the upper airway.

Similar cells play a role in rhinitis and asthma, in particular mast cells, eosinophils and T-lymphocytes.

Most inducers and triggers of asthma initially affect the upper airway and also cause rhinitis. These include allergens and infection, as well as ambient cigarette smoke, atmospheric pollution, strong odours and aerosol sprays.

There appears to be synergy between allergy and infection: an allergic child exposed to a relevant allergen is nearly 20 times more likely to be hospitalised with asthma in response to a viral cold than one who is non-allergic.

The evidence suggests that, even if disease is clinically localised to one part (upper or lower) of the respiratory tract, the other part is always involved to some extent, with most triggers to one part affecting both. This was exemplified by a study where nasal provocation with allergen resulted in bronchial inflammation (Braunstahl et al, 2001) and vice versa.

United airways

The recognition that AR and asthma frequently coexist has led to the concept that these disorders are consequences of the same disease process. This concept, referred to as 'united airways', has important implications for diagnosis and management.

As a result, the World Health Organization's *Allergic Rhinitis and its Impact on Asthma*

LEARNING OBJECTIVES

- Know how to diagnose allergic rhinitis.
- Be aware of the treatment options and their efficacy in treating AR.

(ARIA) guidelines recommended that 'a combined strategy should ideally be used to treat coexistent upper and lower airway diseases in terms of efficacy and safety' (Bousquet et al, 2001).

Extra healthcare use suggests it is necessary to treat rhinitis in most children with asthma (Thomas et al, 2005). Data from managed care in the US shows that rhinitis treatment reduces the frequency of asthma exacerbations and hospital admission.

MANAGING RHINITIS

The revised global ARIA guidelines (Bousquet et al, 2008) or the British Society for Allergy and Clinical Immunology (BSACI) guidelines for allergic and non-allergic rhinitis (Scadding et al, 2008) provide excellent information and advice.

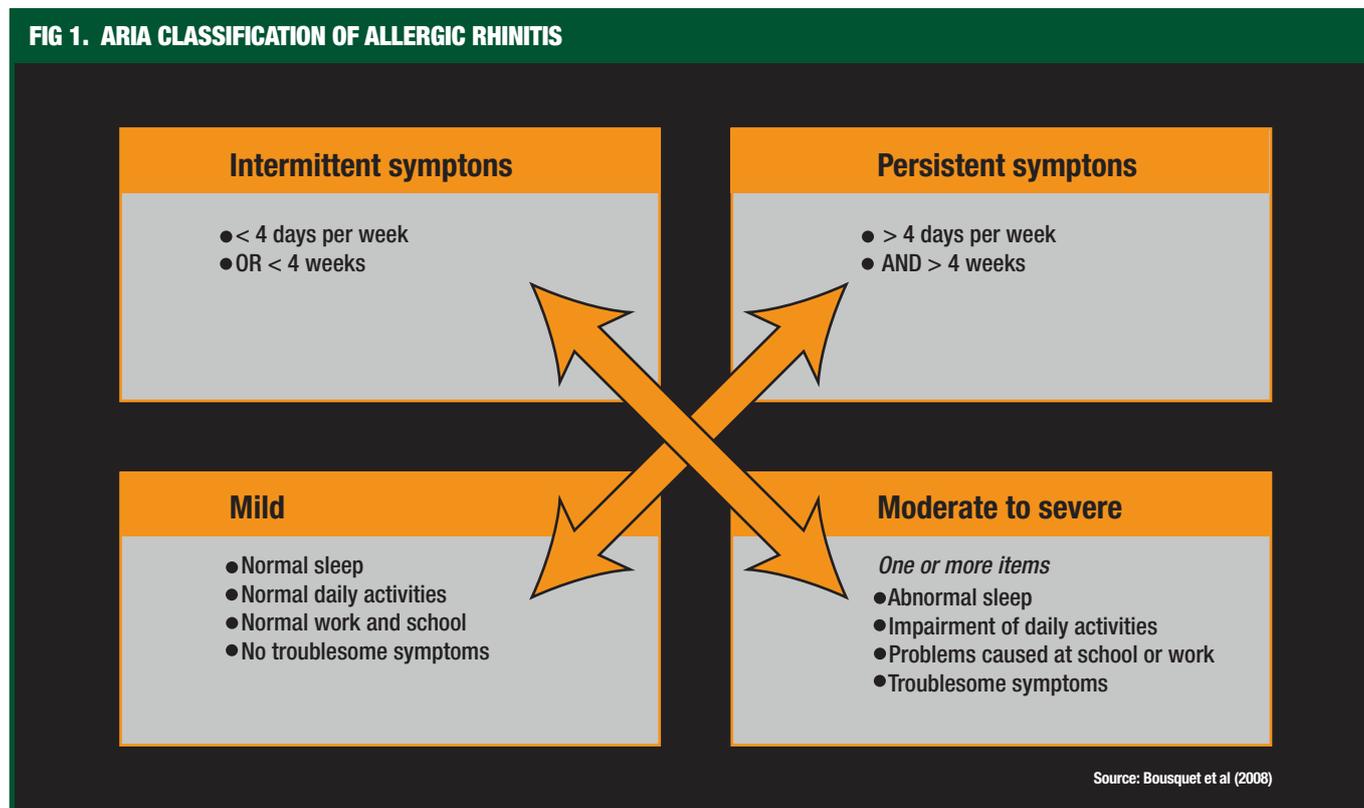
Classification of AR has been changed from the usual seasonal (pollen-induced) and perennial (due to constantly present allergens such as house dust mites) to intermittent and persistent, since these relate to treatment need and are applicable worldwide, even to places where there are no seasons (Fig 1).

However, seasonal rhinitis is not necessarily intermittent; perennial rhinitis is not necessarily persistent.

The terms seasonal and perennial can be used in addition to intermittent and persistent, so a patient may suffer from mild intermittent seasonal rhinitis or severe persistent seasonal rhinitis.

Diagnosis

History-taking: ask about rhinitis symptoms (nasal running, blocking, itching, sneezing) in all patients with respiratory problems, especially those with asthma. The history is most important since there are many causes of

FIG 1. ARIA CLASSIFICATION OF ALLERGIC RHINITIS

rhinitis – allergic, infective, from gastro-oesophageal reflux in small children, immunodeficient (innate and acquired), neurogenic, drug-induced and so on. The condition is more likely to be allergic if there are obvious allergen triggers and/or patients have a personal or family history of allergies.

Check whether symptoms are intermittent or persistent and whether they are mild or moderate to severe (Fig 1).

Examination: look for the following signs: chronic gaping of the mouth and mouth-breathing; post-nasal drip; allergic shiners (darkened lower eyelid due to chronic congestion); irritation-sneezing; itching with consequent rubbing causing allergic crease (transverse skin line between the tip and bridge of the nose); allergic salute (upward rubbing of nose with palm of hand to open congested nasal passages); and rhinorrhoea (anterior or posterior) possibly with conjunctivitis.

Tests: hay fever can be diagnosed with a history of symptoms during the pollen season alone. Some patients need positive identification of allergy by skin-prick tests or blood tests for a specific IgE based on likely allergens. Other causes need to be excluded

(differentiation from enlarged adenoids can be difficult and a trial of rhinitis therapy may be helpful). In primary care, a trial of treatment for rhinitis can be given with referral for accurate diagnosis in those whose symptoms are not relieved sufficiently.

TREATING AR Allergen/irritant avoidance

Avoiding most allergens is difficult but obviously works well when complete; people with hay fever do not have symptoms in the winter. Certain allergens, such as foods and some pets, can be successfully avoided, which means that identifying allergens is worthwhile.

While house dust mite avoidance studies have not shown efficacy, they have been incomplete – a recent extensive allergen avoidance plus medication observation study in children with asthma in the US showed benefit (Spiegel et al, 2006).

Irritant avoidance is often helpful, together with nasal saline douching. Nasal rinsing with hypertonic saline in children with seasonal allergic rhinoconjunctivitis has proved to be tolerable, inexpensive and effective (Li et al, 2009).

Pharmacotherapy

The ARIA treatment strategy is shown in Fig 2 overleaf (Bousquet et al, 2008).

Mild AR may respond to the above measures; if not, non-sedating antihistamines or decongestants can be tried. For moderate to severe disease, the recommended first-line therapy is intranasal corticosteroids and/or second-generation non-sedating antihistamines (Baena-Cagnani, 2004).

Intranasal corticosteroids (INS) are highly effective for moderate to severe AR; they provide the most effective control of nasal symptoms, including congestion, of all medications for AR and are the treatment of choice for anything more than mild AR. They are as effective as antihistamines in reducing ocular symptoms.

Patients may be reluctant to use them due to fears over side-effects. Nurses have two roles – one is to explain the very good safety data of the recent molecules and the other is to demonstrate how to use them (Fig 3, overleaf).

Safety and systemic effects

The small surface area of the nose means that local absorption of steroid is considerably less than in the lungs.

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Some INS pass post-nasally, are swallowed, absorbed from the gut and metabolised by the liver. Systemic bioavailability of INS ranges from <1% for mometasone and fluticasone to 34–49% for beclometasone, budesonide and flunisolide.

No hypothalamic-pituitary-adrenal (HPA) axis or growth suppression has been observed with fluticasone and mometasone (Allen et al, 2002; Schenkel et al, 2000). However, a beclometasone study showed growth suppression of 1cm in children treated for one year with bd dosing. The effect of an individual steroid is predictable (Daley-Yates and Richards, 2004). Budesonide gave short-term reduction in lower leg growth but only when used twice daily.

Systemic absorption, identifiable by effects on growth, is mainly a concern where corticosteroids are used at other sites, for example when they are inhaled for asthma or used topically in atopic dermatitis.

The once-daily use of fluticasone or mometasone should not be problematic and may reduce the dose of inhaled corticosteroid needed. Monitoring growth by stadiometry and plotting it on growth charts is sensible in all children taking corticosteroids, since growth is a highly sensitive measure of systemic effects.

Local side-effects – dryness, stinging, burning, epistaxis – and headache occur in 5–10% of patients receiving INS, regardless of the drug used.

Nasal mucosal atrophy was once considered a risk, but long-term studies with mometasone and fluticasone have shown no evidence of atrophy or metaplasia after 12 months' use (Minshall et al, 1998).

Antihistamines

Antihistamines are effective in treating sneezing, rhinorrhoea and watery eyes but have little effect on nasal blockage. They are useful alone or as an addition to INS in patients insufficiently responsive to INS alone.

Unfortunately, first-generation antihistamines are the most frequently prescribed type for AR even though the associated sedation may make it difficult for children to concentrate and stay alert in school, and reduces exam performance (Vuurman et al, 1993).

Cardiotoxicity (such as QT prolongation) and anticholinergic adverse events may occur. These drugs have not been rigorously tested in children.

Second-generation antihistamines are less likely to cause sedation, anticholinergic effects and cardiotoxicity.

Intranasal antihistamines are well tolerated, and rates of withdrawal from treatment because of adverse events are low. Compared with first-generation ones, they have a lower incidence of sedation, as well as no evidence of QT prolongation.

However, some patients notice a bad taste, the spray cannot be administered if the nose is severely blocked and local nasal treatment does not affect conjunctivitis.

Decongestants are not generally recommended because there is a narrow margin between therapeutic and toxic doses for oral preparations and a risk of rhinitis medicamentosa (rebound nasal congestion) for intranasal ones.

Cardiovascular and central nervous system stimulatory effects limit the usefulness of oral decongestants.

United treatments

There are a few medications which treat not only rhinitis but also associated asthma. These include antileukotrienes, anti-IgE therapy and immunotherapy.

Antileukotrienes are moderately effective against nasal symptoms. They also have anti-asthmatic properties with good effects on exercise-induced symptoms. Small airways inflammation, which responds poorly to inhaled corticosteroids, is reduced by antileukotrienes. They also reduce symptoms of the common cold, which is a frequent asthma-exacerbating factor.

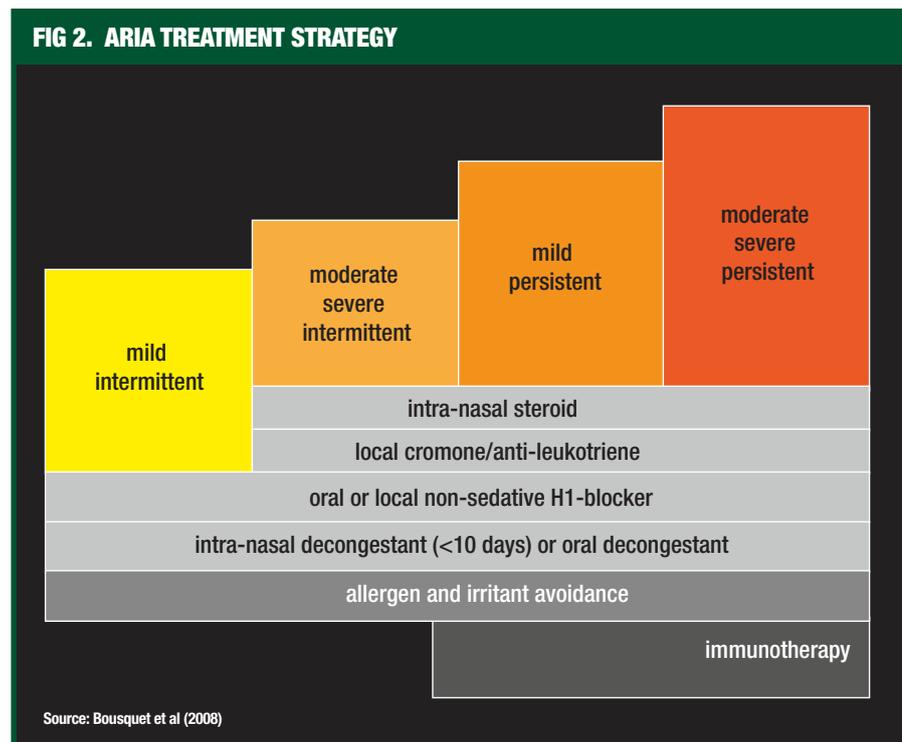
These facts plus good safety data warrant a trial of therapy for a few weeks in seasonal rhinitis with asthma (Philip et al, 2004). The major drawback is cost of around £1 per day which is higher than that of a corticosteroid or OTC antihistamine.

Immunotherapy is the only disease-modifying treatment (Moller et al, 2002) and can reduce the progression of AR to asthma. It may be warranted for severe AR in children if allergen(s) can be accurately identified and exposure to allergen is significant, chronic and unavoidable.

Subcutaneous (injection) immunotherapy must be administered by professionals experienced in the procedure and in settings with the ability to respond to anaphylaxis.

Sublingual immunotherapy may be appropriate for patients who do not want regular injections; initial adverse events of oral itching/burning and gastrointestinal symptoms are manageable (Pham-Thi

FIG 2. ARIA TREATMENT STRATEGY



et al, 2006). The first dose is given under supervision in a setting where airway problems can be dealt with. After that, patients can take it at home.

The decision to give immunotherapy rests with healthcare professionals trained in allergy treatment.

Anti-IgE medication can reduce asthma symptoms and those of AR (Vignola et al, 2004), but it is expensive and needs to be given by injection so is reserved for severe disease unresponsive to other measures.

REFERRAL

Patients with unilateral disease, blood-stained discharge, pain, suspected structural abnormalities or new polyps should see an ENT surgeon. Orbital cellulitis warrants urgent referral. Rhinitis unresponsive to guidance-directed treatment should be referred to an allergist.

Children suffering from asthma that is difficult to control often have ongoing severe upper airways problems such as polyps or other forms of rhinitis/rhinosinusitis and are frequently allergic, chronically infected or both.

Some will have underlying immune deficiencies: these can be innate (cystic fibrosis, primary ciliary dyskinesia) or acquired (hypogammaglobulinaemia, iatrogenic). They should be investigated in joint chest/paediatric and ENT clinics staffed by both doctors and surgeons.

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FIG 3. USING NASAL SPRAYS



Finally, a set of ‘united guidelines’ for both the upper and lower respiratory tract agreed by primary care, asthma, allergy and ENT specialists would be a step forward for integrated patient care.

CONCLUSION

Rhinitis is frequently regarded as unimportant. This is a mistake since the condition not only reduces patients’ quality of life but also

leads to asthma exacerbations.

Careful and accurate diagnosis and treatment can improve patients’ health and happiness and reduce co-morbidities such as asthma.

Nurses have an important role to play in explaining the treatment options to patients and in showing patients how to use some forms of therapy, as well as in encouraging adherence. ●

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