Allergic rhinitis
an unrecognised disability

Allergic rhinitis is such a common condition that the impact on a patient's life is often not fully appreciated. Treatment is readily available to manage symptoms and improve quality of life.

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Allergic rhinitis is a common condition affecting up to 40% of people in Australia. Most patients acquire the disease in childhood or adolescence and continue to suffer well into mid to late adult life. While not life threatening, allergic rhinitis can significantly impact on an individual's quality of life. The degree of this impact is now considered a measure of the severity of the condition and should guide management.[1]

Allergic rhinitis is the clinical manifestation of nasal mucosal inflammation triggered by allergen contact. Patients with allergic rhinitis produce IgE to common airborne allergens. This allergen-specific IgE binds to tissue mast cells and triggers the release of granules containing vasoactive and proinflammatory molecules on subsequent exposure to the specific allergen.

This article discusses the diagnosis and important differential diagnoses of allergic rhinitis and considers the appropriate investigations and contemporary management, including guidelines for specialist referral.

Could it be allergic rhinitis?

Patients who present with a blocked and runny nose may well have allergic rhinitis. Patients typically present with nasal itch, sneezing, rhinorrhoea and nasal blockage, and usually also have symptoms of the eyes (itch, watering and conjunctivitis), pharynx (itch, postnasal drip) and ear (itch). However, for patients with persistent rhinitis, these classical acute symptoms are often not present, having evolved into persistent nasal blockage, fatigue and sleep disturbance.

Targeted examination often reveals characteristic findings. Dark rings under the eyes are a sign of chronic nasal congestion and the atopic salute in children is a sign of chronic rhinorrhoea and itch (Figure 1). Gross nasal obstruction can be determined by asking the patient to sniff while occluding alternate nostrils. An auroscope can provide limited examination of the anterior nasal mucosa; patients with significant allergic rhinitis have an oedematous, pale mucosa with prominent inferior turbinates. Examination can also reveal the

IN SUMMARY

- **Allergic rhinitis can substantially reduce affected patients' quality of life through influence on sleep, work and leisure activities.**
- **Investigation relies heavily on history and targeted testing for confirmation of specific allergic triggers.**
- **Allergen avoidance measures are worthwhile but have only a moderate effect.**
- **Intranasal corticosteroids are effective at controlling symptoms in almost all patients with allergic rhinitis if used correctly.**
- **Immunotherapy (desensitisation) is the most effective treatment in selected patients. The GP's role in ongoing immunotherapy is substantial but the therapy should be initiated by an allergist.**

presence of nasal polyps (Figure 2), another common cause of nasal blockage, and may suggest other pathology (Table 1). Clues to more sinister pathology include bleeding, systemic symptoms (such as fever and weight loss), onset later in life (after 40 years), prominent pain and persistent unilateral disease; patients with these symptoms should be referred to an ear, nose and throat surgeon for examination and tissue diagnosis.

Is it intermittent or persistent, mild or severe?

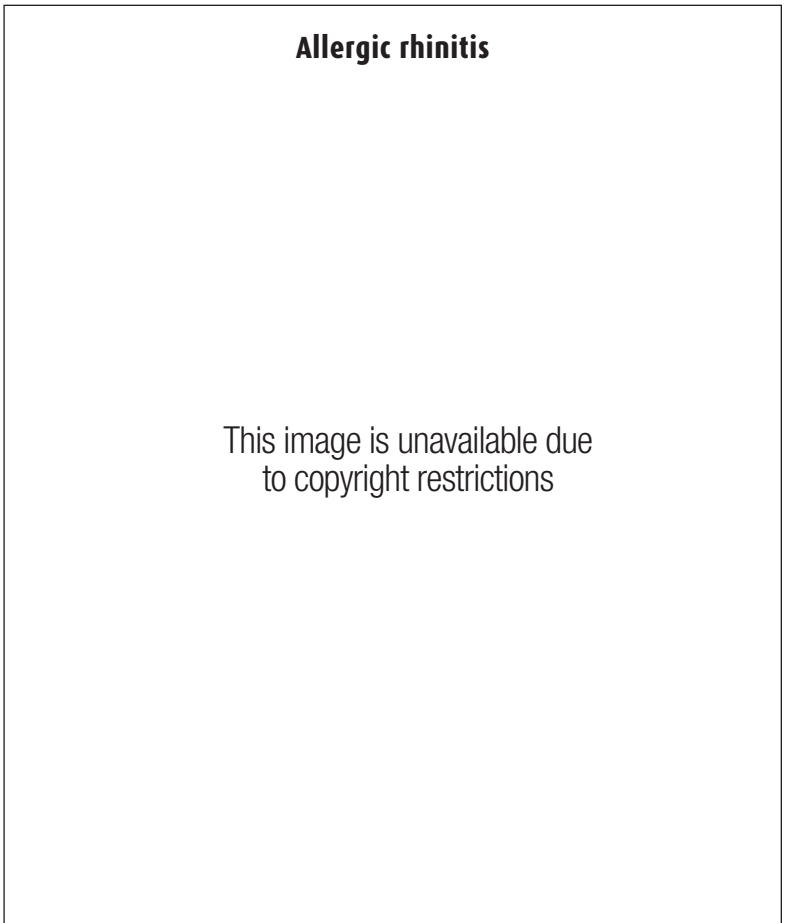
Traditionally, allergic rhinitis has been classified as either seasonal (hay fever) or perennial, depending on the timing of symptoms. A more recent classification – the Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines of 2001 – is based on the frequency and severity of the symptoms as follows:[2]

- intermittent – symptoms are present for less than four days per week or less than four weeks per year
- persistent – symptoms are present for more than four days per week and more than four weeks per year
- mild – absence of sleep disturbance, impairment of daily activities, leisure and/or sport, impairment of school or work, or troublesome symptoms
- moderate to severe – presence of one or more of sleep disturbance, impairment of daily activities, leisure and/or sport, impairment of school or work, or troublesome symptoms.[2]

The severity of allergic rhinitis, therefore, is not determined by the amount of sneezing or the number of tissues a patient uses, but by the impact that the condition has on the patient's sleep, work and quality of life.

Although allergic rhinitis is not life threatening, its significance to an individual is often underestimated. Because of impairment of sleep and the disease itself, allergic rhinitis can cause fatigue, impaired concentration, headaches and irritability. This can impact on school performance for children, work attendance and leisure activities for adults and the performance of elite athletes.[3,4] It can be difficult to assess severity of symptoms in children who have early onset of disease because they may be unable to recall what it is like to feel 'normal'. In these children, a trial of treatment with a retrospective assessment of severity can be enlightening.

Allergic rhinitis



Allergic rhinitis can significantly affect the quality of life of sufferers. Symptoms can be controlled by medications, many of which are available without prescription. Immunotherapy is the only intervention that can modify a patient's allergy, and is likely to be used increasingly.

What are the triggers?

There are many potential allergens for allergic rhinitis but few that consistently emerge as problematic. The more common of these are listed in Table 2.

Relevant triggers for each patient are identified by a history of symptoms that coincide with allergen exposure and then confirmed by detection of IgE specific to those allergens in tissue or blood. Therefore, taking a history directed to the timing of symptoms and their relation to the bedroom

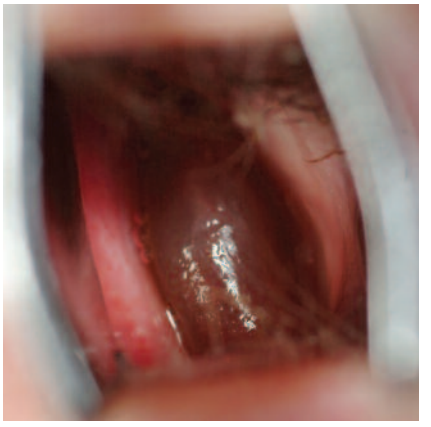


Figure 1 (left). Atopic salute. This child has a typical response to chronic rhinorrhoea.

Figure 2 (above). Nasal polyposis, the most common differential diagnosis for a patient with chronic nasal blockage.

(house dust mite), pets, flowering grasses and trees and particular seasons will guide further investigation.

How is allergen-specific IgE detected?

Skin prick testing

Skin prick testing is a simple test that can be performed in the surgery for detection of IgE to specific allergens in tissue. A drop of commercial allergen solution (Allergenic Extracts for Scratch and Prick Testing) is placed on the patient's skin (forearm or back) and then the surface of the skin is broken with a lancet (Figures 3a and b). If allergen-specific IgE is present, allergen exposure will crosslink IgE molecules on the surface of the mast cell and lead to degranulation, resulting in a typical wheal and flare response (Figure 3c). Although it is an easy and reliable test, results can vary between different centres. False negatives occur in patients who have recently taken antihistamines, and false positives are seen in patients with dermographism.

RAST

RAST is an acronym for radioallergosorbent test, which is the laboratory method originally used to detect allergen-specific IgE in blood. The methods have changed but the name survives. RAST involves a blood test that can be performed at most pathology laboratories and gives a quantitative result.

In practice, RAST is helpful when skin prick testing is not available or is unreliable (because of recent antihistamine therapy, for example), but it is less sensitive than skin prick testing. When RAST is requested, the allergens that are likely to be relevant to the patient's allergic rhinitis should be specifed (such as house dust mite, specific pets and moulds for persistent rhinitis, and grass and tree pollens for seasonal rhinitis).

Table 1. Differential diagnoses of allergic rhinitis

Nasal polyposis
Nonallergic rhinitis
Chronic bacterial sinusitis
Structural abnormality
Cancer
Vasculitis
Rhinitis medicamentosa

Table 2. Common aeroallergens in Australia

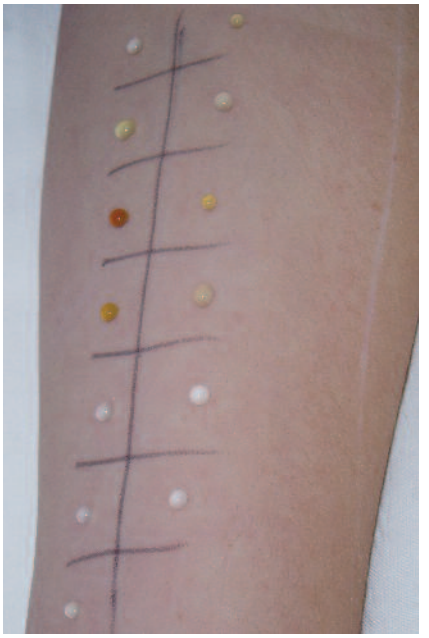
House dust mite (*Dermatophagoides pteronyssinus*) faeces
Grass pollens
Tree pollens
Cat sebum
Dog saliva
Moulds

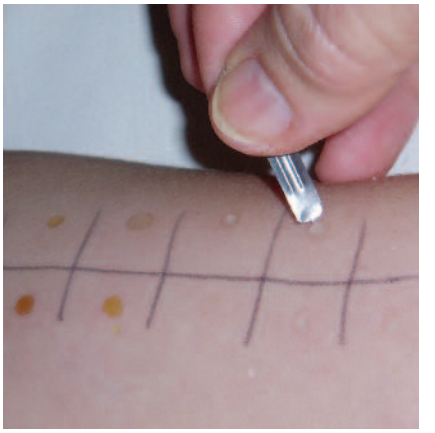
What are the benefits of treating allergic rhinitis?

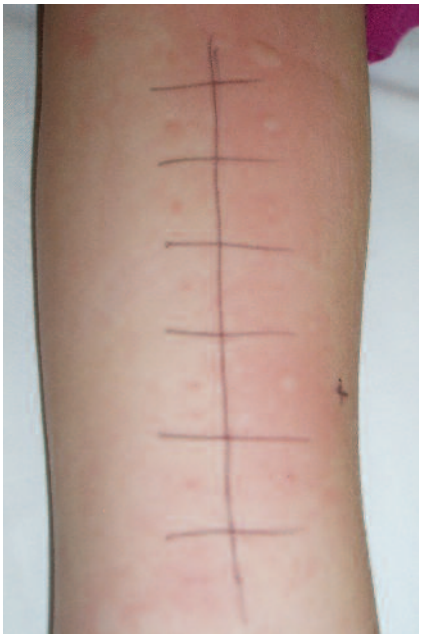
Most people with allergic rhinitis will benefit from treatment, the degree of the benefit depending on the impact that the disease has on their lives. For example, for children treatment can improve learning potential, and for adults treatment can improve quality of life, reduce work absenteeism and improve athletic performance.[3,5] Management of allergic rhinitis also improves asthma control.[2]

Therapy for allergic rhinitis is usually initiated in the community with over-the-counter therapies from pharmacies. In general, most patients will have tried antihistamines and possibly weak intranasal corticosteroids before they consult a doctor. They usually attend because their symptoms are not well controlled, they want to find out what allergen to avoid, or they do not want to remain on treatment forever. Appropriately trained GPs are well placed to make a definitive diagnosis of allergic rhinitis, ensure optimal use of medications, determine likely allergen(s) in most cases, and discuss immunotherapy (desensitisation).

Patients may need referral to allergy specialists if their allergic rhinitis is unresponsive, chronic or complex, further allergen identification is needed or







Figures 3a to c. Skin prick testing. a (left). Allergen solutions are placed on the arm. b (centre). The skin is superficially broken with a lancet. c (right). The wheal is measured 10 to 15 minutes later.

immunotherapy is being considered (Table 3).

Management

There are three options in the management of allergic rhinitis: allergen avoidance, pharmacotherapy and immunotherapy. Therapy is guided by the severity of the condition. An approach to managing allergic rhinitis is given in the flowchart on page 16.

Reduce exposure to triggering allergens

The degree of benefit expected from reducing allergen exposure depends on the allergen being avoided. For example, avoiding house dust mite is difficult because both the mite and the allergen (mite faeces) exist in carpets, bedding, soft toys and curtains. At best, exposure can be reduced by measures that decrease dust mite numbers, such as killing mites by high or low temperatures, encasing bedding with protective covers, and frequent vacuuming using a cleaner fitted with a high efficiency particulate air (HEPA) filter. The faeces are more difficult to eradicate and will often persist for six to nine months after the dust mite has been eradicated.[6]

Exposure to grass and tree pollens is similarly difficult to avoid, especially during spring and summer, as grasses and some trees are wind-pollinators and the pollen may be carried for several hundred kilometres. Some measures that people may find helpful include keeping windows closed, changing clothing and showering on coming inside after exposure.

Pet allergen exposure can be limited by excluding animals from the house, or at least the rooms in which patients spend most of their time (usually the bedroom). However, pet allergens (especially cat allergens) can take several months to decline after the pet has been removed.

Reducing the allergen load can reduce the amount of medication required but offers at best only moderate improvement in rhinitis symptoms.[6]

Relieve and prevent symptoms

Almost all patients with moderate to severe symptoms of allergic rhinitis will benefit from medication, with the primary aim of preventing exacerbations rather than providing symptom relief.

Antihistamines

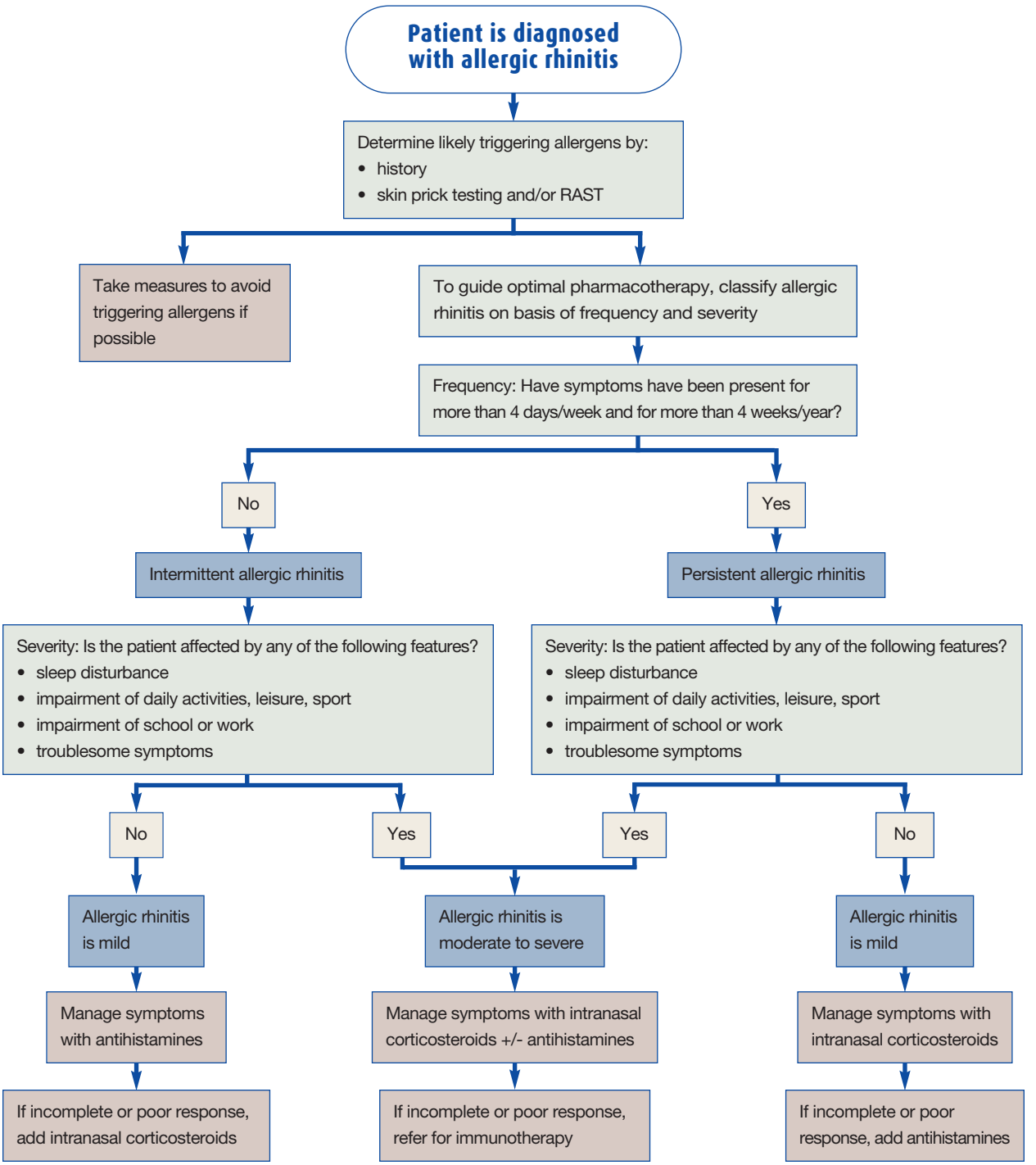
In allergic rhinitis, antihistamines exert their effect locally in the nose by inhibiting histamine receptor activation, preventing mast cell degranulation and decreasing inflammation to a small degree.[7] Thus, antihistamines treat the symptoms of itch, sneezing and rhinorrhoea but are less effective in managing congestion. There have been considerable advances in our understanding of antihistamines, which has increased our confidence in the currently available agents.

Table 3. When to refer patients to an allergy specialist

- Uncertain diagnosis
- Interest in determining allergens
- No response to conventional therapy
- Side effects from conventional therapy
- Consideration of immunotherapy
- A need for daily medications
- Significant impact on sleep, school or work
- Coexisting allergic asthma

continued

An approach to managing allergic rhinitis



In all patients, consider using:
- intranasal saline as a toilet prior to administering intranasal corticosteroids
- antiallergy eyedrops if allergic conjunctivitis is prominent.

All of the older (first generation) antihistamines cross the blood brain barrier extensively, which lowers an individual's seizure threshold and often causes drowsiness. In general, these antihistamines should be avoided in patients with allergic rhinitis. The newer generation agents cross the blood brain barrier to a much lesser extent and thus are less likely to cause drowsiness. Concern regarding cardiac toxicity appears to be a class effect related to the ability of the older antihistamines terfenadine and astemizole to block cardiac potassium channels and thus interfere with action potential conduction. This is not a feature shared by currently available antihistamines.[7]

Antihistamines can be taken for symptomatic relief and for short or long term prevention. Currently available oral antihistamines include:

- cetirizine (Zyrtec)
- desloratadine (Claramax)
- fexofenadine (Fexotabs, Telfast, Xergic)
- loratadine (Claratyne, Lorastyne).

Fexofenadine and loratadine are also available in combination with the decongestant pseudoephedrine (Telfast Decongestant and Clarinase, respectively).

Relief from symptoms caused by allergen exposure can be expected within 30 minutes to one hour of taking an antihistamine. Taking an antihistamine before an expected allergen exposure of short duration (such as visiting a household with a cat) is usually sufficient to prevent symptoms. Long term treatment can be achieved by daily use of oral antihistamines, with few side effects. Topical antihistamines such as azelastine (Azep Nasal Spray) and levocabastine (Livostin Nasal Spray) are also effective in controlling symptoms. However, neither oral nor intranasal antihistamines seem to control nasal symptoms as well as intranasal corticosteroids.[8,9]

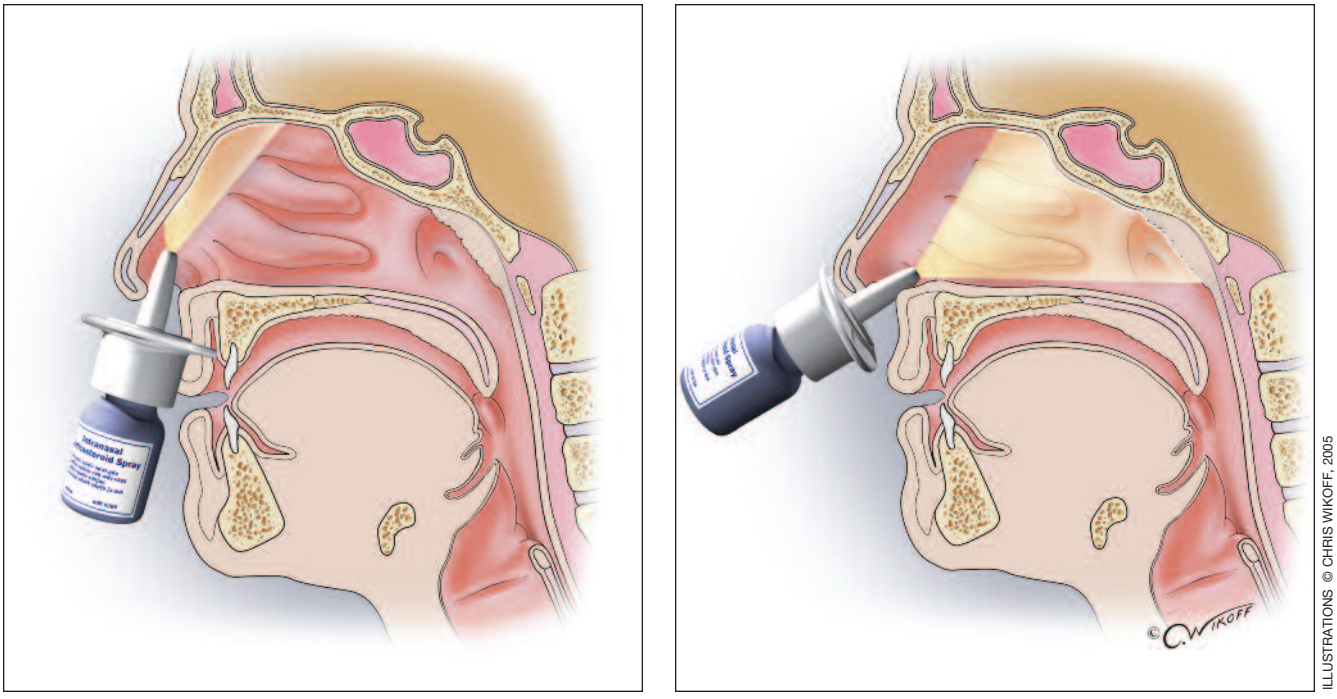
Intranasal corticosteroids

Intranasal corticosteroids act locally via glucocorticoid receptors to decrease inflammation. This action is associated with decreased vasodilatation and reduced capillary permeability, resulting in improvement of nasal congestion and rhinorrhoea in addition to reduced itch and sneezing. Intranasal corticosteroids also improve conjunctivitis and pharyngeal symptoms.

The commonly used preparations of intranasal corticosteroids are:

- mometasone (Nasonex Aqueous Nasal Spray)
- fluticasone (Beconase Allergy 24 Hour Fluticasone Aqueous Nasal Spray)
- budesonide (Budamax, Rhinocort, Rhinocort Hayfever)
- triamcinolone (Telnase)
- beclomethasone (Beconase Hayfever).

These agents have different bioavailabilities and side effect profiles but they are probably equally efficacious if administered correctly (Figures 4a and b). Common side effects are irritation, burning and, occasionally, epistaxis. Epistaxis occurs at only a marginally increased



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Figures 4a and b. a (left). Patients instinctively insert an intranasal corticosteroid spray almost upright. This treats a small area only and is unlikely to benefit the patient. b (right). A greater dose is delivered to where the site of action is needed if the spray bottle is positioned as shown.

Table 4. Immunotherapy: roles of the GP and allergist

GP

- Administering allergen to patient
- Ensuring dosing schedule maintained
- Managing side effects
- Liaising with allergist regarding more severe side effects that may require adjustment of dosage schedules

Allergist

- Defining triggers
- Prescribing and initiating immunotherapy
- Monitoring treatment effectiveness and adverse events (e.g. every six months)
- Determining duration of immunotherapy

frequency with intranasal corticosteroids than with placebo and can usually be managed by applying Vaseline daily to the area of the nasal septum that is within reach of the finger tip.

When intranasal corticosteroids are used in the setting of active inflammation, improvement may not be noticed until four to five days after treatment commencement; therapy should be continued for at least a month to assess the response. Intranasal corticosteroids are best used to prevent symptoms known to occur at particular times of the year, such as pollen allergies in spring, or if symptoms are present every day, such as occurs with house dust mite allergy.

Patients who rely on daily intranasal corticosteroids or who have moderate to severe symptoms are likely to benefit from desensitisation if it is possible to identify the specific allergic trigger(s).

Other medications

There are a multitude of other medications that can be used for allergic rhinitis, including:

- the mast cell stabiliser sodium cromoglycate (Rynacrom)
- the anticholinergic agent ipratropium bromide (Atrovent Nasal)
- the leukotriene receptor antagonists montelukast (Singulair) and zafirlukast (Accolate)
- decongestants.

In general these agents are less effective than intranasal corticosteroids. Leukotriene receptor antagonists have been trialled in allergic rhinitis and are of similar efficacy to antihistamines but, because of their higher price, do not yet have a role in the routine management of this condition. Intranasal decongestants (α-adrenergic receptor agonists) may be used for short term relief of symptoms but, because they are temporary vasoconstrictors, long term use can result in the rebound disease rhinitis medicamentosa. Oral decongestants may provide additional relief of nasal congestion but side effects generally limit their use in allergic rhinitis.

Allergic conjunctivitis associated with allergic rhinitis that is not controlled by intranasal corticosteroids alone or with antihistamines will benefit from additional topical therapy. Antiallergy eye drops can be classified as:

- pure antihistamines – levocabastine (Livostin Eye Drops)
- antihistamines combined with decongestants – antazoline combined with naphazoline (Antistine–Privine Eye Drops) and pheniramine combined with naphazoline (Naphcon-A, Visine Allergy with Antihistamine)
- mast cell stabilisers – sodium cromoglycate (Opticrom), lodoxamide (Lomide Eye Drops 0.1%)
- medications that have combined antihistamine and mast cell stabilising actions – ketotifen (Zaditen) and olopatadine (Patanol).

Of these, olopatadine appears to be the most effective.[10,11]

Treat the underlying cause

There are two types of desensitisation currently available in Australia: conventional subcutaneous immunotherapy (SCIT) and the newer sublingual immunotherapy (SLIT). SCIT is administered on a monthly basis after induction as subcutaneous injections of allergen in the lower, outer aspect of the upper arm, while for SLIT, patients are given increasing quantities of allergen instilled under the tongue, usually on a daily basis at home. Protocols can differ between prescribing allergists.

Despite the route of desensitisation, all immunotherapy relies on the theory that by administering increasing doses of the allergen, it is possible to induce a form of tolerance to the allergen and therefore 'cure' the allergy. Immunotherapy is effective for most aeroallergens but relies on the correct one being administered; for example a patient who is allergic to cats will derive no benefit if given house dust mite desensitisation. Many patients are sensitised to multiple allergens, of which one or two may be significant in causing symptoms. It is, therefore, important for the patient's immunotherapy to be prescribed and initiated by an allergist. The roles of the GP and the allergist in immunotherapy are summarised in Table 4.

The improvements in symptoms achieved with desensitisation are better than those achieved with pharmacotherapy.[12] Patients should be informed that it may take six months for SCIT and up to two years for SLIT to have an effect. Most desensitisation protocols continue for three years and have a response that lasts for many years after completion of therapy;[13] shorter courses result in less durable responses. There is promising new evidence that immunotherapy decreases new sensitisations[14] and could decrease new diagnoses of asthma[15] in children undergoing therapy, although it is not currently used for these preventive indications.

There are several disadvantages to immunotherapy, the most obvious being the duration of the treatment. Many

patients think twice when they discover that it will be three years before they complete their therapy; however, it is encouraging that only a few withdraw during therapy. Adherence is facilitated through the monthly injections with SCIT but is likely to be more problematic with SLIT as this is usually self-administered daily by the patient at home.

Anaphylaxis is the most concerning potential adverse effect with SCIT (it has not been reported with SLIT). Fortunately this is a rare occurrence, probably even rarer with the newer products, but for this reason patients are required to remain at the surgery for 30 minutes after the injection so that if they do develop anaphylaxis, it can be promptly treated with intramuscular adrenaline (Adrenaline Injection, Epipen). Anaphylaxis should prompt a temporary dose reduction in immunotherapy, and advice from the supervising allergist should be sought. The more common side effect of SCIT is local swelling, which can be minimised by administration of an antihistamine one hour before the injection and an ice pack immediately after.

The absence of potential anaphylaxis with SLIT makes this therapy safe to be administered at home, but local adverse events (such as oral itch and abdominal pain) are common.

The obvious benefits of SLIT compared with SCIT are that no injections are needed and there is a more favourable side effect profile in that anaphylaxis has not been reported. On the downside, SLIT appears to be less effective in controlling symptoms, takes longer to have an effect (two years compared with six months), compliance is likely to become an issue, and the cost is greater because the total allergen dose is higher (about $740 compared with about $170 for one year's maintenance therapy). Also, the long term benefits of SLIT have not yet been demonstrated.

Conclusion

Allergic rhinitis can cause a substantial impact on the lives of sufferers. Currently available medications are effective in controlling symptoms if used correctly. Immunotherapy is likely to be used increasingly as it is the only intervention that can modify the patient's allergy. It is hoped that our increasing understanding of allergens and the mechanisms of tolerance will lead to shorter and more effective desensitisation strategies.

An excellent allergy resource for both patients and doctors can be found at the Australasian Society of Clinical Immunology and Allergy (ASCIA) website (www.allergy.org.au). MT

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