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Allergic rhinitis

Practical management strategies

Background

Allergic rhinitis is a common condition associated with significant effects on quality of life. Readily available treatments can improve outcomes in rhinitis as well as associated allergic diseases such as asthma. Yet allergic rhinitis remains underdiagnosed and undertreated.

Objective

This article outlines practical strategies and evidence based management of allergic rhinitis.

Discussion

Allergic and nonallergic rhinitis often co-exist. Thorough history of allergen exposure and its relationship to symptoms is vital for the ordering and interpretation of investigations and for management decisions. Some allergen avoidance measures may be ineffective and may cause an unnecessary burden. Demonstrated effective strategies are patient education, intranasal steroids and immunotherapy ('desensitisation'). General practitioners play a vital role in all three strategies, and in supporting patients and families to self manage what is often a chronic condition.

■ **'You know how they did those 12 prick tests... what have you, they have the pollen, the bed mites and things like that. I'm a bit blasé when it comes to things like that... I mean, if [my son] sneezes, he sneezes, you know? What can you do? And that's just part of life. And, unless it gives him chronic, chronic symptoms, I really don't think it's much of a worry. [It] was just general house dust that he was sensitive to – unfortunately you have to live with that. You're never going to get away from it. We don't live in a sterile environment.'**

Allergy and allergic conditions such rhinitis ('hayfever') arouse a range of community responses from indifference to heightened concern.¹ The above quote is from a qualitative study on parental views of their children's allergies² and typifies attitudes held by many. Interestingly, the parent has also highlighted key issues in recent research; quality of life, undertreatment, allergen avoidance and the importance of patient education.

Allergic rhinitis has tended to be seen as an annoying nuisance rather than a serious disease. However recent studies have documented its impact on quality of life,³⁻⁵ with significant effects on sleep, cognitive and psychomotor function, participation in social activities, and learning impairment in children. Economic impact analysis shows the estimated financial cost of allergy in Australia in 2007 was \$7.8 billion, with \$5.6 billion due to lost productivity.⁶ While this estimate includes all allergic conditions, allergic rhinitis is the most common allergic disorder, and often coexists with asthma, sinus disease, eczema and conjunctivitis. Treating rhinitis can improve outcomes for asthma and vice versa.^{7,8} Yet, despite the morbidity, availability of over-the-counter treatments and evidence that intranasal steroids and immunotherapy are effective, rhinitis is often underdiagnosed and undertreated.⁹

Clinical assessment

Rhinitis is usually classified into nonallergic and allergic. Allergic rhinitis is further divided into seasonal ('hayfever') and perennial



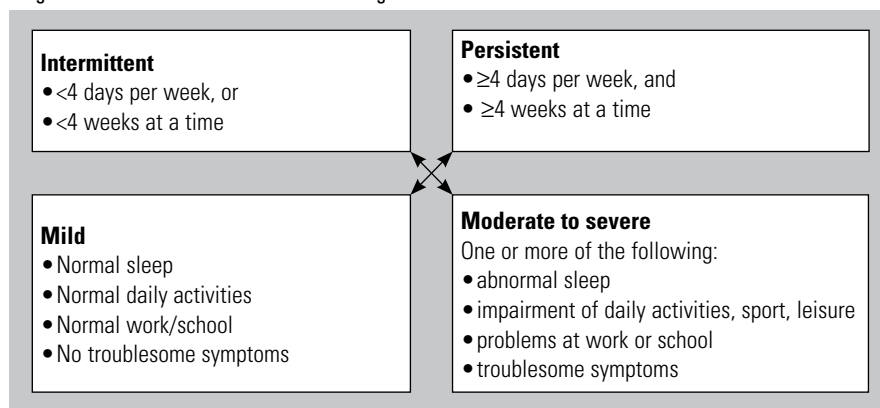
Table 1. Types of rhinitis – characteristic features^{14, 28, 29}

Rhinitis type	Key features
Allergic rhinitis	
Seasonal allergic rhinitis 'hayfever'	Associated with spring and early summer Triggered by pollens, timing dependent on plant species and geographical location
Perennial allergic rhinitis	Symptoms occur year round Triggered by house dust mite, pollens and pet animals
Allergic and nonallergic rhinitis	
Occupational	Symptoms abate away from workplace Triggered by chemicals and irritants (eg. in manufacturing processes, laboratories, hair and nail salons) and allergens (eg. work with animals)
Nonallergic rhinitis	
Idiopathic	Triggered by strong smells and changes in temperature
Infective	Most commonly repeated viral infections causing episodes every 4–8 weeks of mucousy nasal discharge lasting 5–7 days
Vasomotor rhinitis	Sudden onset and offset of watery discharge
Nonallergic with eosinophilia (NARES)	Negative allergy tests but >20% eosinophils on nasal smears
Hormonal	Associated with pregnancy, hypothyroidism and acromegaly
Drug induced	Beta blockers, chlorpromazine, oral contraceptives, aspirin, rebound symptoms from topical decongestants

(all year round) types (*Table 1*). While this classification is useful for specific treatments such as allergen avoidance and immunotherapy, in practice, nonallergic and allergic rhinitis often co-exist.¹⁰ These may be difficult to differentiate as skin prick tests can be positive in 25–30% of healthy young adults and 30–35% of healthy children.^{11,12} An alternative classification system based on symptom severity and frequency has been proposed and is useful in treatment decision making (*Figure 1*).

Rhinitis symptoms characteristically include nasal obstruction and rhinorrhoea, with allergic rhinitis also featuring sneezing, itchy nose, eyes and throat. However, the presentation can be more nonspecific, with features such as 'fuzzy' head, tiredness and day time sleepiness, constant 'colds', and in children, sniffing, blinking and eye rubbing, speech problems, snoring, and dark circles under the eyes. Once rhinitis is suspected, take a directed history to assess the patient's environment and likely exposure to allergens and irritants, the type and timing of symptoms and their relationship to exposure, and the effect of symptoms on quality of life.¹⁴ This history will underpin decisions about investigations and future management. Key features on history and physical examination are set out in *Table 2*.

Figure 1. Functional classification of allergic rhinitis¹³



Skin prick testing

Skin prick tests are the principal investigation for assessing the allergic basis of symptoms in patients of all ages, but their reliability is highly dependent on the use of correct technique, reliable extracts, and positive and negative control tests. Adequate training and safety precautions are essential and Australasian practice guidelines are available.¹⁵ It is important to remember that positive results (a skin wheal ≥3 mm) do not prove that the allergen is causing the patient's symptoms, only that there is sensitisation or IgE antibodies to the allergen. Additionally, patients and parents often interpret skin wheals as proof of allergy. Investigations therefore need to be guided by history and their limitations carefully explained to patients. Limit the allergens to be tested to what appears to be likely or to what can



be excluded, as the indiscriminate ordering of ‘panels’ with large numbers of allergens can lead to confusion and unnecessary allergen avoidance. Interpret tests together with the history. For example, symptoms restricted to early spring with negative tests to rye grass and positive tests to house dust mite suggests that symptoms are nonallergic as house dust mite is a year round allergen.¹⁶ A mismatch between test results and history, or failure to respond to treatment should prompt consideration of other diagnoses (*Table 3*). Allergy testing is further reviewed in the article by Robinson and Smart in this issue of *AFP*.

Management

Evidence based guidelines confirm that patient education improves treatment effectiveness and quality of life; intranasal steroids are the treatment of choice; and that immunotherapy (‘desensitisation’) is highly effective in selected cases.¹⁴

Parent and patient education

The chronic nature of rhinitis symptoms and consequent need for self management underline the importance of patient education.

This should cover the practical implications of test results, allergen avoidance measures, benefits, risks and side effects of treatments, techniques for administering topical medications, and follow up. As an adjunct, patients can be directed to internet based information sources (see *Resources*). Common questions include:

Do I really need to buy dust mite covers?

While avoidance of proven or likely allergens is a cornerstone of allergy management, in reality it can be difficult to achieve, particularly for house dust mite. There is little evidence that mite reduction strategies are effective in relieving perennial rhinitis and bedding covers used alone appear to be ineffective.¹⁷ The decision to implement avoidance strategies such as impermeable covers, replacement of soft furnishings, high filtration vacuum cleaners and frequent washing will depend on the severity of symptoms, the motivation of families to trial strategies, and the cost.

Should I get rid of the cat?

Removal of a pet can be very upsetting, so clear demonstration of sensitivity to the animal is required before such advice is given. It

Table 2. Key features in clinical assessment

Important points in the history	
At what age did the symptoms start?	Seasonal rhinitis is more common in school aged children and young adults Perennial rhinitis is more common in preschool children
Does the rhinitis occur all year round or at a particular time of the year?	Rye grass is the most common cause of hayfever. Grass pollination usually extends for 6–8 weeks in spring and early summer
Is there a nasal discharge? Is it unilateral or bilateral? What is it like?	Watery, bloody, discoloured or unilateral discharge suggests diagnoses other than allergic rhinitis
Does the patient have cough, wheeze, itchy red eyes and skin?	Asthma (50% of rhinitis patients have asthma), rhinoconjunctivitis (70% of rhinitis patients) and eczema frequently co-exist with allergic rhinitis
What drugs does the patient take?	Medications may cause symptoms Response to previous treatment and capacity to follow long term treatment regimen influence subsequent management
What allergens is the patient exposed to?	Ask about housing conditions, occupational exposure, and pets Diet in young children as food allergies may co-exist
What effect do the symptoms have on quality of life?	Ask about sleep, snoring, day time somnolence, school and work performance, participation in social activities
Important points on physical examination	
Inspect the face	Signs of allergic rhinitis include ‘shiners’ (dark circles under the eyes) and transverse nasal crease caused by the ‘allergic salute’, an upward rubbing of the nose with the hand
Assess nasal airflow by asking patient to close mouth then breathe normally through the nose onto a metal surface such as a stethoscope arm	The area of condensation indicates air flow Unequal airflow suggests partial obstruction, most likely due to swollen turbinates and/or a deviated nasal septum
Look up each nostril with an auriscope	Assess inferior turbinate size, nasal mucosal appearance, nasal septum position, presence of polyps If the patient has had epistaxis, dilated vessels may be apparent in Little’s area
Examine the throat	Large tonsils indicate lymphoid hypertrophy which may involve the adenoids Mucus in the oropharynx (‘postnasal drip’) indicates upper airways pathology such as rhinosinusitis



Table 3. When to suspect nonallergic causes

Clinical feature	Possible cause
Mismatch between allergy test results and clinical presentation	Nonallergic rhinitis (Table 1) Any of the causes listed below
Mismatch between degree of airflow obstruction and diameter of nasal airway on inspection	Adenoidal hypertrophy (eg. inferior turbinates do not appear swollen and airway appears patent, but airflow is restricted)
Unilateral obstruction	Structural causes such as deviated septum, enlarged turbinates, nasal polyps
Persistent unilateral discharge	In children, foreign body Rarely, watery unilateral discharge may indicate cerebrospinal fluid leak
Persistent mucopurulent discharge +/- facial pain	Chronic rhinosinusitis or superimposed infection
Nasal crusting	<i>Staphylococcal aureus</i> infection, nose picking In adults, severe crusting is rare and suggests connective tissue disease
Loss of sense of smell	Chronic sinusitis or polyps
Failure to respond to medical treatment for allergic rhinitis	Nonadherence to treatment regimen Reconsider diagnosis, including any of the causes listed above
These clinical scenarios should prompt review of the diagnosis and possible referral to specialist allergist or ENT services, as appropriate These conditions may co-exist with allergic rhinitis	

is difficult to adequately control symptoms if the pet remains in the house. After removal of the pet, symptoms may not resolve promptly as cat allergens in particular, may persist in furnishings. Thorough cleaning may be beneficial.

How do I avoid pollen?

Strategies such as staying indoors in an airconditioned environment or wearing a mask outdoors have low acceptability and are generally impractical. Pre-treatment with antihistamines before outdoor exposure may give some protection. Using a clothes dryer to finish drying washed bedding may reduce exposure to pollen deposits. Wearing of sunglasses has been suggested for reducing ocular deposition, but is of unproven efficacy and may be impractical in children.

When do I use antihistamines?

Oral and topical antihistamines are effective in allergic rhinoconjunctivitis and histamine related symptoms such as itching, rhinorrhoea and sneezing, but are less effective for nasal blockage. Ideally they should be given before allergen exposure. Impairment in learning and concentration have been demonstrated with older antihistamines, therefore newer oral formulations (cetirizine, loratadine, fexofenadine) are preferred. Intranasal antihistamines (levocabastine, azelastine) are as effective as oral antihistamines and have a rapid onset of action.

Intranasal steroids

Intranasal steroids are the treatment of choice for persistent moderate to severe allergic rhinitis (Figure 1) and may also improve nonallergic rhinitis.¹⁸ Where there is coexisting asthma, intranasal steroid use is associated with fewer emergency presentations for

Table 4. Instructions for administering intranasal sprays¹⁴

Patients should:

1. Shake the bottle
2. Look DOWN at the floor
3. Use the right hand for the left nostril, put the nozzle just inside the nose and aim to the side
4. Squirt once or twice as directed
5. Change hands and repeat for the other side

Note: it is not necessary to sniff hard

asthma.⁸ Intranasal steroids should be commenced before referring patients with nasal obstruction to an allergist or ear, nose and throat surgeon (Table 3).

Intranasal steroids appear safe for long term use, although it is prudent to use the lowest dose that will control symptoms.^{18,19} The total steroid dose should be considered, for example if used for intercurrent asthma. Systemic absorption of intranasal steroids occurs, but side effects typical of systemic steroids such as osteoporosis, diabetes and hypertension have not been reported. Triamcinolone, budesonide, fluticasone and mometasone have lower systemic bioavailability.²⁰ Beclomethasone used for 1 year has been shown to affect children's growth, but this has not been demonstrated with fluticasone or mometasone.^{21,22} For this reason, children should be prescribed these newer generation formulations in low doses and have their growth monitored.

A common reason for treatment failure is nonadherence due to local side effects such as dryness, irritation and epistaxis from spraying Little's area in an 'upward' direction. Demonstrate and



check the patient's technique (*Table 4*). Where patients find it difficult to use sprays on a daily basis, intermittent 'when necessary' dosing has been shown to be effective for beclomethasone and fluticasone over the short term (4–6 weeks).²³ Used before the steroid, nasal saline spray can clear mucus, thus improving mucosal contact with the steroid and potentially reducing the dose required to be effective.

Immunotherapy

Systematic reviews of randomised controlled trials have demonstrated Level I evidence for the effectiveness of immunotherapy in improving symptoms and medication use in allergic rhinitis and asthma.^{24,25} The decision to start immunotherapy should be carefully considered (with an allergist referral) as 3–5 years of treatment is required for sustained effects. Immunotherapy may be recommended where symptoms are severe and medications have been ineffective, inappropriate or have intolerable side effects. Systemic reactions to injection immunotherapy are rare; a general practitioner treating 10 patients can expect one systemic reaction every 7 years.²⁴ As reactions can be unpredictable, patients should wait in the surgery for 30 minutes following injections. More recently, oral or sublingual immunotherapy has been shown to be effective for allergic rhinitis.²⁶ This may be more acceptable to children and those wishing to avoid injections and waiting time as it can be given at home. There have been no reports to date of systemic reactions to sublingual immunotherapy where single inhalant allergens are administered.

Conclusion

Allergic rhinitis tends to be chronic and relapsing, so it may be difficult to see treatment effects and adhere to therapy. Complementary and alternative therapies are a current research focus but evidence is inconclusive.²⁷ Advise patients to be cautious with advertisements for 'allergy cures'. Nonetheless, there is much that can be done to improve symptoms and quality of life – for the parent quoted earlier, the GP can inquire about other symptoms, inform about the relationship between asthma and rhinitis, confirm their views on allergen avoidance and discuss treatment options, including allergist referral if immunotherapy is to be considered. As with other chronic diseases, a long term partnership between GP, parent and patient is more likely to result in satisfactory outcomes.

Summary of important points

- Allergic rhinitis is often chronic but readily available treatments are effective in relieving both rhinitis and associated conditions such as asthma.
- Patients presenting with rhinitis should be assessed for asthma, rhinoconjunctivitis and eczema.
- Positive skin prick and RAST tests can be misleading to patients, parents and doctors. Ordering and interpretation of tests should be guided by likelihood of allergens on history rather than

indiscriminate 'panel' testing.

- Evidence of the effectiveness of allergen avoidance measures, particularly for house dust mite, is limited.
- Antihistamines are useful for itching, rhinorrhoea and sneezing but are not effective for nasal obstruction, for which intranasal steroids are required.
- Newer generation intranasal steroids are preferred due to their lower systemic bioavailability, particularly in children.
- A common reason for treatment failure with intranasal steroids is incorrect administration technique.
- Immunotherapy can lead to sustained improvement in symptoms; patients should be referred to a qualified allergist or practitioner trained in the prescription of immunotherapy if this is being considered.
- Patient and parent education is essential for effective management.

Resources

- **Australasian Society of Clinical Immunology and Allergy (ASCI)**
A comprehensive range of information sheets for health professionals and patients. ASCIA is the peak professional body for specialist allergists in Australasia and the site also lists members and their contact details www.allergy.org.au
- **HealthInSite**
Australian Government endorsed site for health consumer information. Ask patients to search under 'rhinitis' not 'hayfever', as the latter will yield mostly product information www.healthinsite.gov.au/index.cfm
- **American Academy of Allergy, Asthma and Immunology**
www.aaaai.org/patients.stm
- **American College of Allergy, Asthma and Immunology**
www.acaai.org/public/.

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