Allergic rhinitis: a review

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Abstract

Allergic rhinitis is a common condition that occurs due to an inflammatory response that involves the release of histamine, which is initiated by allergens that are deposited on the nasal mucosa. Allergens that are responsible for seasonal allergic rhinitis include grass pollens, tree pollens and fungal mould spores. Perennial allergic rhinitis occurs when symptoms are present all year round and is commonly caused by house dust mites, animal dander and feathers. The symptoms of allergic rhinitis can be extremely irritating and affect the patient’s quality of life. Management of allergic rhinitis includes identifying and avoiding the allergen where possible, and treatment to relieve the unpleasant symptoms.

Introduction

Allergic rhinitis is an inflammation of the mucous membrane that lines the nose and is characterised by a collection of symptoms, mostly affecting the nose and eyes, which arise when an allergen such as dust, animal dander or pollen is inhaled.1-4 Allergic rhinitis is caused when the immune system reacts to the inhaled allergen that has become trapped by the nasal filtration system. Allergic inflammation is characterised by the accumulation of mast cells, T helper type 2 (TH2) cells and eosinophils. Allergens interact with the mast cell-attached immunoglobulin E (IgE), resulting in the release of chemicals, including histamine. Histamine, in turn, causes symptoms by a direct effect on vascular histamine receptors. This results in local swelling and oedema. It also stimulates sensory nerves. This causes the induction of reflex-mediated sneezing and increased watery nasal secretion.1,2,4-7

Allergic rhinitis is classified as seasonal or intermittent if symptoms typically occur at a particular time of the year, or as perennial or persistent if symptoms occur all year round.9

Risk factors

Proposed or identified risk factors for allergic rhinitis include the following:6

- Early use of antibiotics
- Exposure to indoor allergens, such as the dust mite allergen
- Presence of allergen-specific IgE
- Serum IgE > 100 IU/ml before the age of six.

Symptoms

The symptoms of allergic rhinitis include the following:1,3,5,7,9

- Sneezing
- Runny nose
- Itchy nose, mouth, eyes, throat and skin
- Watery eyes
- Allergic conjunctivitis
- Decreased sense of smell
- Nasal congestion and sinusitis
- Blocked ears, earache and otitis media
- Sore throat
- Cough
- Dark circles or puffiness under the eyes
- Fatigue and irritability.

Symptoms that are also associated with allergic rhinitis and which may develop later include:

- Headache
- Postnasal drip.

Allergic rhinitis may lead to other diseases, such as sinusitis and asthma.1,10 It is estimated that up to 80% of patients with asthma have allergic rhinitis.10
Management

Obtaining a detailed history is important when evaluating allergic rhinitis. Important elements include an evaluation of the nature, duration and time course of the symptoms, possible triggers for the symptoms, response to medications, co-morbid conditions, a family history of allergic diseases, environmental exposures (e.g. smoke, pollution and smells), occupational exposure and the effect of all of the above on quality of life. A thorough history may help to identify specific triggers and suggest an allergic aetiology for the symptoms.

The management of allergic rhinitis encompasses the following components:8,9

- Allergen avoidance
- Pharmacotherapy
- Allergen immunotherapy (when appropriate).

Management is based on whether symptoms are seasonal or perennial and whether they are mild or moderate. The choice of treatment should be rational and based on the patient’s symptoms and previous history, where relevant.8 Most cases of allergic rhinitis respond to pharmacotherapy. Patients with intermittent symptoms are often treated adequately with oral or intranasal antihistamines, decongestants, or both, as needed. Regular use of an intranasal steroid spray may be more appropriate for patients with moderate or persistent symptoms. Ocular antihistamine drops (to treat eye symptoms), intranasal anticholinergic sprays and short courses of oral corticosteroids (reserved for severe and acute episodes only) may also provide relief.9

Seasonal allergic rhinitis

Seasonal allergic rhinitis is more commonly known as hay fever. Usually, both the nose and eyes are affected. Most cases result from allergy to pollens. Seasonal allergic rhinitis usually responds well to treatment. Ideally, allergen avoidance should be the first approach in managing any allergic disorder.2 However, this approach is impractical for many patients.

Nonetheless, patients with seasonal allergic rhinitis may be advised to: remain indoors as far as possible, especially on windy days, or use an air conditioner in the home and in the car, rather than opening a window.

Medical treatment

Antihistamines

Many pharmacists consider antihistamine drugs to be the first-line treatment for mild to moderate and intermittent symptoms of allergic rhinitis.3 Antihistamines work well in reducing allergic symptoms such as sneezing and rhinorrhea. Unfortunately, they are relatively ineffective in treating nasal blockage.2,3,4 The first-generation antihistamines, such as chlorpheniramine and brompheniramine, frequently cause a dry mouth and drowsiness.7 The newer, oral, nonsedating histamine-1 receptor antagonists or second-generation antihistamines include loratadine, desloratadine, fexofenadine, cetirizine and levocetirizine. These drugs are not associated with sedation and have become agents of choice for most patients, especially children.2,7,9

Antihistamines are best avoided in patients with narrow-angle (closed-angle) glaucoma, as the possible anticholinergic effects may cause an increase in intraocular pressure. They should also be used with caution in patients with liver disease or prostatic hypertrophy.1

Topical antihistamines, such as levocabastine and azelastine, may be very effective in seasonal allergic rhinitis sufferers who have mild and intermittent symptoms. Topical antihistamines produce rapid symptomatic relief of itching, sneezing and nasal discharge. They do not have a significant effect on nasal blockage.2,3,4

Decongestants

Oral or topical decongestants may be used in the short term to reduce nasal congestion, alone or in combination with an antihistamine.3 Decongestants stimulate vasoconstriction by directly activating alpha-adrenergic receptors of the respiratory mucosa. This shrinks the swollen membranes in the nose and makes breathing through the nose easier for the patient.9 Topical decongestants (e.g. oxymetazoline and xylometazoline) should not be used for longer than a week. Prolonged use can cause a rebound effect or worsening of symptoms when the drug is discontinued.5,7 Oral decongestants include pseudoephedrine, phenylpropanolamine and phenylephrine.11

Eye drops that contain an antihistamine and sympathomimetic combination may be of value in troublesome eye symptoms, particularly when symptoms are intermittent. The sympathomimetic acts as a vasoconstrictor, reducing irritation and redness.8

Sodium cromoglycate

Sodium cromoglycate is available as nasal drops, a spray or eye drops. Sodium cromoglycate is effective as an antiallergic and anti-inflammatory agent only when used for long-term prophylaxis.7,11

Topical steroids

A steroid nasal spray is the treatment of choice for moderate to severe persistent nasal symptoms. The steroid reduces the inflammation that has occurred as a result of the allergen’s action. The intranasal corticosteroids help all nasal symptoms, but are particularly useful in patients with a blocked nose.3

Examples of available products include the following:2,11

- Beclomethasone (Beclate Aquanase®, Beconase® and Clenil® aqueous nasal spray)
- Fluticasone propionate (Avamys®, Flixonase® and Flomist®)
- Budesonide (Budeflam®, Inflanze® and Rhinocort®)
- Triamcinolone acetonide (Nasacor T®)
- Mometasone (Nasonex®).

Regular use is essential for the full benefit to be obtained and treatment should be continued throughout the hay fever season. If symptoms of hay fever are already present, the patient needs to know that it is likely to take several days before the full treatment

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effect is reached. Dryness and irritation of the nose and throat, as well as nose bleeds, have occasionally been reported, otherwise side-effects are rare.²

Other treatments

The leukotriene inhibitor, montelukast, is a prescription medicine that is approved to help control asthma, but is also used to help relieve the symptoms of seasonal allergies.⁴ Nasal irrigation with saline can be used alone to treat mild symptoms, or just before other topical medications, so that the mucosa is freshly cleansed when nasal medications are applied.⁶

Immunotherapy

Immunotherapy (desensitisation) is sometimes recommended for patients with seasonal allergic rhinitis, especially if the patient cannot avoid the allergen (e.g. grass pollen-sensitive individuals) or if the symptoms are difficult to control. Immunotherapy includes regular injections of the allergen. Success relates to achieving a high cumulative dose over the treatment period.²,⁴,⁷

Surgery

Surgical care may be indicated for co-morbid or complicating conditions, such as chronic sinusitis, severe septal deviation that causes severe obstruction, nasal polyps or other anatomical abnormalities.⁹

Perennial allergic rhinitis

Patients with perennial allergic rhinitis are invariably allergic to allergens that are present in the environment throughout the year, e.g. house dust mites, animal dander or fungal spores.²,⁶

Treatment

Adequate environmental control measures are an important component of any treatment plan. Where house dust mites are identified as a problem, regular cleaning of the house to maintain dust levels at a minimum can help. Specialised vacuum cleaners are now available that claim to be particularly effective.¹ If there are pets in the home, they should not be allowed to go into sleeping areas.

Other preventative measures to limit exposure to house dust mites include the following:

- Mattresses and pillows should be covered with airtight covers.
- Bedding should be washed weekly in hot water.
- Carpets, curtains and other items that collect dust (e.g. upholstered furniture, rugs and soft toys) should be removed from sleeping areas.

Pharmacotherapy for perennial allergic rhinitis follows the same guidelines and recommendations as for seasonal allergic rhinitis. However, treatment is usually year round, rather than seasonal. Once-daily steroid nasal spray preparations are the mainstay of treatment for perennial allergic rhinitis.⁷

Complications

Allergic rhinitis can be complicated by secondary bacterial infection in the middle ear (otitis media) or the sinuses (sinusitis). Both these conditions cause persisting severe pain. Irritated watery eyes are a common accompaniment to allergic rhinitis. Occasionally, allergic conjunctivitis is complicated by a secondary infection. Referral is then needed.³

When associated symptoms such as tightness of the chest, wheezing, shortness of breath or coughing are present, immediate referral to the doctor is advised. These symptoms suggest the presence of asthma.³

Conclusion

Allergic rhinitis may cause debilitating symptoms that can have a severe impact on the patient’s quality of life and productivity. As more medications become available without a prescription, the pharmacist can play a vital role in helping the patient select an appropriate product with minimum side-effects that will relieve and control their symptoms. Many cases of allergic rhinitis can be managed successfully with over-the-counter (OTC) medication. However, patients whose symptoms do not respond to OTC products should be referred to the doctor.

References