How to identify and manage seasonal allergic rhinitis

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Seasonal allergic rhinitis (SAR), more frequently referred to as hay fever, is a common disorder suffered by a great many people in the United Kingdom. It is often referred to by patients as a summer cold, which lasts a long time and will not go away.

Since its first identification in 1819 by John Bostock, a physician from Manchester, there has been a progressive global increase of both prevalence and severity of seasonal allergic rhinitis (Bousquet et al, 2008). Clinicians are familiar with the person who comes in at the end of May or beginning of June with itching, sneezing and a runny or blocked nose, often accompanied by itchy and teary eyes and sometimes also with cough and wheeze. What many do not realise is that there are many ‘hay fever’, or properly, pollen, seasons throughout the year.

However, the pollen which receives the greatest attention occurs typically in late spring and early summer. Although the main culprit is grass pollen, there are an increasing number of aeroallergens, such as birch, hazel, nettle and latterly even ragweed, which are now causing symptoms over a longer time frame. The appropriate name is now intermittent allergic rhinitis (AR). Some people have more than one seasonal allergen and thus may have multiple bouts throughout the year (Figure 1). It is also a common feature that patients suffer badly in some years, while in others not at all.

There are several explanations for this. Pollen counts differ considerably from year to year. The expression or timing of pollination may vary in different parts of the country, typically with problems being less severe and later in the season the further north you go. In cities, the allergenicity may be enhanced or made worse by the presence of air pollutants, such as ground-level ozone. Finally, circumstances in the patient’s life may influence the season-to-season variability, such as smoking, intercurrent illness or stress.

Diagnosing Seasonal Allergic Rhinitis

In straightforward SAR/intermittent AR the diagnosis is relatively simple. The patient complains of runny nose, sneezing, itching (of nose, palate, ears) and nasal blocking, frequently accompanied by eye symptoms of itching and tearing (allergic conjunctivitis).

Equally common is the patient presenting with a ‘summer cold’ — a runny or blocked nose which has persisted for a couple of weeks.

It is important to differentiate allergic from non-allergic rhinitis (NAR), especially as NAR responds poorly to treatment for AR, although both may feature in exacerbating asthma. NAR can be:

- Infectious
- Vasomotor
- Occupational
- Hormonal
- Drug-induced
- Gustatory
- Non-allergic with eosinophilia syndrome (Ryan et al, 2008).

The mainstay in the management of NAR is, where possible, removal of the precipitant. For example, cessation of aspirin or beta blocker for drug-induced, or a reduction in alcohol intake or chilli consumption in gustatory rhinitis.

A further confounding feature is the presence of persistent allergic rhinitis (PAR). The symptoms for this are different, in that the nose is...
blocked rather than runny, sneezing and eye symptoms are not as marked, with the predominant feature being nasal blockage. PAR, NAR and SAR may all co-exist.

It is useful to stratify disease by severity and type. Allergic Rhinitis and its Impact on Asthma (ARIA) has a useful grid which facilitates this classification (Figure 2).

Many patients who suffer from mild intermittent or persistent symptoms do not seek formal medical help as they are able to purchase saline nasal irrigation, antihistamines, or topical nasal steroids over the counter without prescription. These generally meet their needs or render them symptom free, although there are no data to support this.

It is mainly patients with moderate or severe disease who present for consultation (Bousquet et al, 2006; Figures 3 and 4). It is important to realise that AR is not a trivial disorder, as it impacts considerably on the life of the patient and his/her family (Valovirta et al, 2008).

**HISTORY-TAKING**

Important components in history-taking are:
- Nature and duration of symptoms
- Any personal or family history of allergic disorders
- Current medications being taken (including over the counter)
- An assessment of the impact the symptoms are having on the patient’s quality of life.

As with all patients, smoking history should be taken and specific enquiries made concerning asthma, which is present in up to 40% of those with AR (Guerra et al, 2002). Furthermore, up to 80% of those with asthma can also suffer with AR, which can be a confounding factor. Rhinitis, of whatever sort, predicts worse asthma control, higher incidence of exacerbations and hospitalisations, but the evidence that treating rhinitis improves asthma is somewhat elusive.

**EXAMINATION**

Features of AR are nasal crease and Morgan Dennie lines. The lower part of the nose should be examined for signs of hypertrophy of the turbinates (indicating mucosal oedema), polyps, or deviation of the nasal septum.

Investigations are not usually helpful or required in primary care. Skin prick tests may be performed, but this rarely happens in primary care. Specific immunoglobulin E (SIgE) tests may be undertaken, but, in the author’s clinical opinion, they are expensive and serve little useful purpose at this time as the diagnosis should be based on the patient’s history.

**MANAGEMENT**

It is helpful to have an understanding of the pathophysiology of AR, both to know what is happening and also to improve patient...
education. The allergic reaction occurs when a pollen cross links with two SIgE molecules. These are resident on mast cells. This cross-linking triggers the release of pre-formed inflammatory mediators. Of these, histamine is perhaps the most dominant and has an immediate effect (early allergic response), which is seen with sneezing, itching eyes and running of the eye and nose. Some patients also experience itchy tympanic membranes or palates. Those with asthma may have a sudden bout of coughing and wheezing. This initial reaction will last an hour or two, but the pre-formed mediators also recruit other cells, cytokines and chemokines to create a late phase response which is more characterised by nasal blockage, although the other symptoms may persist.

**Allergen avoidance**
This is, of course, the logical thing to do, but during the pollen season, pollens are ubiquitous, making it difficult to avoid them.

**Non-pharmacological strategies**
Pollens in cars are beneficial. Pollen levels are at their highest in the evening, so this is a good time to stay indoors. Drying clothes inside the house avoids transporting pollens inside. Wearing sunglasses may reduce the ocular impact of pollens. Some people find the application of nasal balms helpful.

**Saline nasal irrigation**
This aspect of care is often not considered in spite of a favourable Cochrane review (Harvey et al, 2007). It may be used alone or in conjunction with other therapies. The precise mode of action is unknown, but it:
- Cleans dried secretions
- Improves mucociliary clearance
- Reduces inflammatory markers.

Saline nasal irrigation is available both over the counter and on prescription. Video instruction appears on both companies’ websites.

**Over-the-counter remedies**
There is a range of medications available over the counter which may be beneficial. Although not recommended (Church et al, 2010), first-generation antihistamines are still on sale (Table 2). These have a greater incidence of drowsiness and may cause psychomotor retardation.

Second-generation antihistamines (Table 3) are generally more effective and have a smaller range of side-effects, although drowsiness may still be a problem. As previously mentioned, histamine is the main mediator of the early allergic response. Antihistamines are best administered before exposure, i.e. two weeks before the start of the hay fever season.

For protection to be maintained, antihistamines should be taken every day, without breaks on days when low pollen counts are forecast. In the author’s clinical experience, this degree of compliance is essential for optimal results and needs to be communicated to patients.

**Figure 2.** Stratification of allergic rhinitis.

**Figure 3.** Profile of symptoms presenting in primary care, as found in Bousquet et al’s study (2006) into the effect of allergic rhinitis on quality of life, sleep and work performance.
Decongestants

Some patients find these medications helpful if their main symptoms are those of nasal congestion, i.e. blocked nose and sinus pain.

Topical decongestants

Topical decongestants, such as xylometazoline, oxymetazoline and ephedrine, have a rapid onset of action providing quick symptom relief. They need to be used frequently to maintain effect. They should not be used for more than 5–7 days, as tachyphylaxis and rhinitis medicamentosa (rebound congestion) occur, which is difficult to treat (Ramey et al, 2006). Oral decongestants, pseudoephedrine for example, is a vasoconstrictor agent which reduces mucosal swelling and opens up the sinuses and Eustachian tubes. Unlike topically administered vasoconstrictors, it does not cause rebound congestion, but its use may cause insomnia, anxiety, urinary retention and may exacerbate glaucoma (Bousquet et al, 2004).

Topical nasal steroids

Beclometasone and fluticasone are available over the counter. While they have some benefit in reducing the early allergic response, they are more useful in attenuating the late-phase response. Globally, they are considered to be the most effective single agent (Brozek et al, 2010). They also have some beneficial effect on ocular symptoms. The newer topical steroids (fluticasone, mometasone) have the advantage of only being needed to be used once daily.

Topical nasal antihistamines

Currently, azelastine is the only nasal antihistamine available in the UK for topical nasal use, although it is also available as eye drops. Olopatadine is also available in eye-drop form. Topical nasal antihistamines have the advantage of having few, if any, systemic side-effects, thus obviating the somnolence which can affect some 10% of second-generation antihistamine users, but also averting the risk of side-effects such as glaucoma or urinary retention.

Cromoglycate/nedocromil

These are available as eye drops. They work by stabilising mast cell membranes and reducing the liberation of inflammatory agents. They can be helpful in the management of ocular symptoms (González-López et al, 2012). Cromoglycate is also available as a nasal spray.

Leukotriene receptor antagonists

These tablets may be taken once daily and are particularly beneficial if the patient has lower respiratory tract asthma-type symptoms, i.e. cough, wheeze, chest tightness, or is aspirin sensitive.

Oral corticosteroids

Oral corticosteroids may be helpful as a short, sharp course for severely troubled patients. Although symptoms will be rapidly resolved, they will return just as quickly when the corticosteroids are stopped. However, they present an opportunity to start regular treatment at the same time to prevent symptoms recurring.

Injectable corticosteroids

There are still many people who are treated with injectable steroids

Figure 4.

Representation and quantification of the single most troublesome symptoms suffered by adults and children with AR, taken from an online survey of 2,355 individuals, from whom 2,002 (85%) had nasal congestion (adapted from Shedden, 2005).

Decongestants

Topical decongestants

Topical nasal steroids

Topical nasal antihistamines

Cromoglycate/nedocromil

Leukotriene receptor antagonists

Oral corticosteroids

Injectable corticosteroids

Table 1: Pseudo-primed mediators

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<td>Histamines</td>
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<td>Leukotrienes</td>
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<td>Prostaglandins</td>
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<td>Cytokines</td>
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<td>Interleukins</td>
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<td>Platelet-activating factor</td>
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Table 2: First-generation antihistamines

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<td>Alimemazine</td>
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<td>Clemastine</td>
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<td>Cypheptadine</td>
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<td>Hydroxyzine</td>
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<td>Diphenhydramine</td>
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<td>Ketotifen</td>
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<td>Promethazine</td>
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<td>Brompheniramine</td>
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Table 3: Second-generation antihistamines

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<td>Cetirizine</td>
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<td>Loratidine</td>
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<td>Levocabastine (nasal spray)</td>
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<td>Rupatidine</td>
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<td>Desloratidine</td>
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Table 1: Pre-formed mediators

- Histamines
- Leukotrienes
- Prostaglandins
- Cytokines
- Interleukins
- Platelet-activating factor

Table 2: First-generation antihistamines

- Alimemazine
- Chlorphenamine
- Clemastine
- Cypheptadine
- Hydroxyzine
- Diphenhydramine
- Ketotifen
- Promethazine
- Brompheniramine

Table 3: Second-generation antihistamines

- Cetirizine
- Loratidine
- Levocabastine (nasal spray)
- Azelastine (nasal spray)
- Fexofenadine
- Mizolastine
- Levocetirizine
- Rupatidine
- Desloratidine
every year. This form of therapy is not supported by guidelines because of the adverse risk–benefit ratio. This technique is preferred by patients because, in general, it is effective with rapid onset of action and almost complete abolition of symptoms. The risks are those of avascular necrosis (AVN) of the femoral head (Weinstein, 2012), as well as all the other side-effects commonly associated with oral corticosteroids, such as weight gain, glucose intolerance, skin thinning and cataracts.

**Combination therapy**

Recently, a new preparation has been licensed for the management of AR. This is a combination of azelastine (an antihistamine) with fluticasone furoate (a corticosteroid) (Dymista®, Meda Pharmaceuticals). It is administered twice daily by means of a topical nasal spray.

Clinical trials have demonstrated that its use is associated with rapid onset of action and a greater effect than either of the constituent agents used as monotherapy (Carr et al, 2012; Bousquet et al, 2015).

ARIA (http://bit.ly/1KAXlm0) and the British Society of Allergy and Clinical Immunology have both produced guidelines for the management of AR (http://bit.ly/1HIuTfa).

Essentially, these guidelines adopt the same step-wise approach of adding on treatment to gain control (Figure 5). Both groups are currently revising their guidelines.

**PATIENT EDUCATION AND COUNSELLING**

An integral part of patient management is patient education. Adherence throughout the hayfever season improves control of symptoms. Patients often decide not to take their medication if, for example, the forecast for the pollen count is low or it is raining. This means that they lose protection with a return of symptoms, which are more difficult to reduce once they become established.

Thus, patients should be encouraged to adopt the routine of taking medication every day. Setting alarms on mobile phones is a good way of reminding patients to do this. It is also important to instruct patients on how to inhale nasal steroids, i.e. with a slow nasal inhalation, avoiding rapid sniffing. It is better if the spray stays in the nostril for a couple of minutes.

Patients should first blow their nose to clean out any old mucus. Then gently inhale the nasal spray pointing the nozzle away from the nasal septum. This is best achieved by using the right hand for the left nostril and vice versa. There are a number of videos on You Tube, but none is perfect and they nearly all exhibit some side-effects. The inhaler only needs to be primed before the first use, thereafter, it only needs to be primed if it has not been used for two weeks or more.

One of the side-effects of nasal corticosteroids is nose bleeds. This is because:

1. If the nozzle is inserted into the nasal septum it may cause local trauma and bleeding
2. The mucous membrane overlying the septum is very thin. The action of nasal steroids further weakens the blood vessels, predisposing them to bleeding. This is not a problem on the lateral nasal wall, so teaching and explanation of nasal inhalation technique is important.

**Managing expectations**

Even in the best hands, most people do not achieve complete relief of symptoms. However, nearly everyone who takes their medications as prescribed will notice some improvement.

For example, those with mild disease may have their symptoms eradicated completely, while those with severe symptoms may only achieve an improvement to moderate severity.

**Lifestyle factors**

Obviously, cigarette smoking makes matters far worse so advice on smoking cessation is important. Healthcare professionals should also give health promotion advice around exercise, keeping fit and alcohol consumption. One of the pharmacological effects of alcohol...
is to cause nasal congestion and blockage.

**Immunotherapy**

This has fallen into abeyance since the Committee on Safety of Medicines decreed that immunotherapy should only be undertaken in places where there is immediate access to resuscitation equipment in 1986.

However, immunotherapy is still available in the UK, but is restricted to those with more severe therapy-resistant disease. Recently, immunotherapy administered sublingually has been introduced for grass and house dust mite (and ragweed in the United States). Patients who are suffering badly and who have positive S-IgE blood tests should be referred to an allergist for consideration of immunotherapy.

In the author’s opinion, it is likely that immunotherapy will make a comeback in the not too distant future. There are now well-designed trials exhibiting the long-term benefits and cost-effectiveness of this therapy (Durham et al, 2011).

**CONCLUSION**

AR is an increasingly common and severe disorder. A structured approach to history-taking and management is likely to improve outcomes for patients, who must also be educated about critical components of management, such as compliance and nasal inhalation technique. Major guidelines are currently in revision, namely the ARIA and BSACI guidelines.

**REFERENCES**


Shedden A (2005) Impact of nasal congestion on quality of life and work productivity in allergic rhinitis: findings from a large online survey. Treat Respir Med. 4: 439–46


**KEY POINTS**

- Allergic rhinitis (AR) is a common disorder which has a major impact on the lives of sufferers and families.

- Although currently there is no cure for patients with this disease, a variety of therapeutic interventions can alleviate the symptoms.

- It is important that nurses are able to differentiate allergic and non-allergic rhinitis (NAR) from viral upper respiratory tract infections (URTIs) in order to best manage their patients.

- It is also necessary to ask appropriate questions of those patients attending for asthma review, as they may have unrecognised and untreated disease.

- Familiarity with the range of medications and their administration is advocated.

- Patients with troublesome, non-resolving symptoms need to be referred, as do those with red flag signs.