

Patient Information:**Allergy 101:****Rhinitis in the College Student**

Rhinitis is an inflammatory condition that affects nearly everyone at some point in life. Symptoms of rhinitis include nasal discharge and drainage, itching, sneezing, and congestion. There are three rhinitis syndromes that can have long-term impact on quality of life. The first is the inflammatory type called allergic rhinitis (AR). The second, a non-inflammatory type is called non-allergic or vasomotor rhinitis (VMR). Third, a mixed-form of the disorder occurs in which the first two syndromes overlap.

While acute rhinitis can be caused by cold or influenza viruses, these syndromes are easy to diagnose and are self-limited (they get better and go away). Less commonly, sinus infections can cause chronic rhinitis. Nasal polyps, and other anatomic obstructions (i.e. large adenoids or deviated nasal septa) may be causes of long-term symptoms mimicking rhinitis.

SYMPTOMS OF RHINITIS

Rhinitis (both AR and VMR) are characterized by one or more to the following symptoms: congestion, runny nose, sneezing, nasal itching, or postnasal drip. Nasal congestion is often the most bothersome symptom. Patients often experience itching of the eyes with bluish coloring under them, itching and popping ears and hoarseness of the voice. In fact, common presenting complaints for rhinitis sufferers at Virginia Tech are chronic cough - intermittent and nagging with a tendency to clear the throat often, and variably sore throat. Cough may worsen at night from drainage when lying down. The pattern of sore throat is frequently one that is worse in the morning, gets better in the day, only to recur in the evening.

Which Form of Rhinitis Do I Have?**Allergic Rhinitis (AR): Seasonal and Perennial**

Patients who have seasonal AR can readily identify the spring or fall as the time of allergen exposure (trees, grass, ragweed pollen) when their symptoms commonly occur. Perennial AR causes daily symptoms which span several months and are usually caused by indoor allergens such as dust mites, cockroaches, animal dander, and mold.

AR is an inflammatory process involving your immune system's initial and subsequent response to small airborne particles called allergens. Basophils

and mast cells produce inflammatory substances (including histamine) that cause many of the symptoms. Seasonal (intermittent) allergic rhinitis affects an estimated 10%-20% of the U.S. population. For 80% of those persons, the symptoms started before 20 years of age. Risk factors for AR include a family history of seasonal allergy, asthma, and/or eczema. When both parents have allergies, symptoms often start in childhood. When one parent has it, symptoms often start after puberty. In some people these allergens can cause reactions in the lungs (asthma), and eyes (allergic conjunctivitis). Studies suggest that 43% of rhinitis sufferers have AR.

Vasomotor Rhinitis (VMR)

The vast majority of this type is non-inflammatory resulting from complex autonomic nervous system reflexes, systemic disease, and local or systemic effects of medications. Triggers of the symptoms include environmental and respiratory irritants (i.e. cigarette smoke, fireplace/stove smoke, car exhaust, dust), weather changes (cold, dry air), hot and spicy food, alcohol, strong odors (perfume, house cleaner and gas fumes), or bright lights. Exercise, menstrual cycles, birth control pills, aspirin and other NSAIDs (i.e. ibuprofen and naproxen sodium), blood pressure medications, hypothyroidism, and topical decongestant overuse can cause it. Chemical fumes the in lab, sawdust at work, or chalk dust in class can cause it – opportunities abound! Studies suggest that 23% of rhinitis sufferers have VMR.

Mixed Rhinitis

With this form, you simply have seasonal allergies and are also sensitive to vasomotor triggers. Studies suggest that 34% of rhinitis sufferers have mixed rhinitis.

DIAGNOSIS OF RHINITIS

The patient's medical history and physical exam are the most important diagnostic tools for diagnosing and distinguishing between AR and VMR. In most cases, treatment may be started without expensive allergy skin or blood testing. Testing is indicated in treatment resistant cases. Some students have had testing prior to coming to Virginia Tech, as children or teens. It is important to remember that the immune system is dynamic and subject to change with time,

Allergy 101:

Rhinitis in the College Student

so old “negative” tests in the past don’t rule out new allergies or irritants!

RHINITIS TREATMENT

Management of your rhinitis involves several components: environmental control, appropriate medication use, education about management, and follow-up.

Environmental Control

Some simple measures can reduce a person's exposure to allergens, irritants, and triggers that provoke rhinitis.

Dust mites — Exposure to dust mites can be reduced by encasing mattresses, pillows, box springs, and comforters in mite-impermeable barriers. Stuffed dolls and toys should be avoided. Sheets and blankets should be washed weekly in warm water with detergent or dried in electric clothes dryers on a hot setting. Exposure can be further reduced by keeping indoor humidity lower than 50 percent, vacuuming and dusting regularly, removing carpets and drapes (especially from bedrooms), and not sleeping on upholstered furniture (eg, couches).

Animal dander — Exposure to animal dander can be reduced by keeping pets out of bedrooms, sealing or placing filters over the air vents to bedrooms, and removing carpets. In some cases, it may be necessary to remove pets from the home. Cat dander, in particular, can linger in an environment long after a cat has been removed, trapped under the carpet and in the weave for months, so a person's symptoms may not improve for several months.

Cockroaches — Exposure to cockroaches can be reduced by using poison bait or traps, keeping food and garbage tightly enclosed at all times, and sealing cracks to the outside.

Indoor molds — Growth of indoor molds can be reduced by removing sources of standing water and persistent dampness by removing house plants, fixing leaky plumbing, correcting sinks and showers that do not drain completely, and dehumidifying damp areas to levels below 50 percent. Surfaces with visible mold growth should be cleaned with a 10 percent solution of bleach. Molds can also be present under old carpets, especially older apartments around campus – and may present a difficult negotiation challenge between student and some landlords.

Pollens and outdoor molds — Exposure to pollens and outdoor molds can be reduced by keeping car and house windows closed and using air conditioning during peak pollen seasons, staying inside on dry, windy days, and showering at night to remove pollens

and spores from the hair and skin before bed. The American Academy of Allergy, Asthma, and Immunology has a toll free number (1-800-976-5536) and website (www.aaaai.org/nab/index.cfm) that monitors pollen and mold spore counts.

Air filters — It is not clear if high-efficiency particulate air (HEPA) cleaners are helpful in reducing exposure to allergens. These cleaners are not very effective for reducing exposure to dust mites since little of this allergen is airborne. However, some studies have suggested that HEPA cleaners may be effective for removing cat allergens from the air. Face masks are encouraged for persons with occupational exposure to allergens and irritants and range from simple paper types to higher-end HEPA masks. Contact your environmental safety or OSHA representative at work to discuss your rights and protection options.

Irritant avoidance — On-campus, primary or second-hand cigarette and hookah smoke and the exhaust from the on-campus power plant are the big problems for persons with VMR. Bar-hopping, chemicals in chemistry lab, attending “smoke-filled” parties, or simply walking through the perfume section of a big department store can put you at additional risk. Other than the power plant, most irritant exposures at work or play are due to choices students make and can be avoided.

Medication Use

Several different classes of drugs counter the inflammation that causes symptoms of allergic rhinitis. The severity of symptoms and personal preferences usually guide the selection of specific drugs.

Nasal steroids — Nasal steroids (steroids delivered by a nasal spray) are usually recommended first for the treatment of AR. These drugs have few side effects and dramatically relieve symptoms in most people. These steroids are not absorbed into the blood stream. Studies have shown that nasal steroids are more effective than oral antihistamines for symptom relief. The nasal steroids include [fluticasone](#) (Flonase®), fluticasone furoate (Veramyst®), [mometasone furoate](#) (Nasonex®), [beclomethasone](#) (Vancenase®, Beconase®), [budesonide](#) (Rhinocort®), [flunisolide](#) (Nasarel®), and [triamcinolone](#) (Nasocort®). These drugs differ with regard to the frequency of doses, the spray device, and cost, but all are similarly effective for treating all the symptoms of AR. While used for VMR and mixed rhinitis, not all have FDA indication for use. People with severe rhinitis may need to use a nasal decongestant for a few days

Allergy 101:

Rhinitis in the College Student

before starting a nasal steroid to reduce nasal swelling, which will allow the nasal spray to reach more areas of the nasal passages ([see "Decongestants" below](#)). A word about "steroids", used correctly nasal steroids are not absorbed in the bloodstream, are not capable of the anabolic effects that have been seen sadly abused in professional sports. They are not going to turn a drug screen positive for steroids. They are safely used in children.

Antihistamines — Antihistamines relieve the itching, sneezing, and runny nose of AR but not VMR, and they do not relieve nasal congestion. Combined treatment with nasal steroids or decongestants may provide greater symptom relief than use of either alone.

The oral, over-the-counter antihistamines include [brompheniramine](#) (Dimetapp allergy[®], Nasahist B[®]), [chlorpheniramine](#) (Chlor-Trimeton[®]), [diphenhydramine](#) (Benadryl[®]), and [clemastine](#) (Tavist[®]). These drugs often cause sedation and should not be used before driving or operating machinery. Simultaneous use of a decongestant may reduce the sedating effects, but patients should still use caution. The remaining oral, prescription antihistamine includes [fexofenadine](#) (Allegra[®]). [Loratadine](#) (Claritin[®], Alavert[®]) and [cetirizine](#) (Zyrtec[®], Xyzal[®]) are now available without a prescription. These drugs are much less sedating and are available in long-acting formulas; however, they are more expensive and are of no greater benefit than over-the-counter antihistamines for treating rhinitis symptoms.

[Azelastine](#) (Astelin[®]) is a prescription nasal antihistamine spray that can be used daily or only as needed to relieve symptoms of post-nasal drip, congestion, and sneezing. It starts to work within minutes after use. It is effective for AR and VMR. Patients may use up to eight total sprays per day; higher doses can cause sedation. The most commonly observed side effect is a bad taste in the mouth immediately after use, which can be minimized by keeping the head tilted forward to prevent the medicine from draining down the throat.

Decongestants — Decongestants such as [pseudoephedrine](#) (Sudafed[®]) are often combined with antihistamines in oral, over-the-counter allergy drugs such as Actifed[®], Tavist-D[®], Claritin-D[®], Zyrtec-D[®], etc. Several decongestant nasal sprays also are available, including [oxymetazoline](#) (Afrin[®]) and [phenylephrine](#) (Neo-synephrine[®]). Nasal decongestants should not be used for more than three days at a time because they may cause a different type of rhinitis called rhinitis medicamentosa. This is a

condition where long-term use causes you to require more frequent medication dose or your nose "rebounds" with reflex congestion. Oral decongestants elevate blood pressure and are not appropriate for people with high blood pressure.

Cromolyn sodium — [Cromolyn sodium](#) (Nasal crom[®]) prevents the symptoms of AR (but not VMR) by stabilizing mast cells (the cells that can release substances which cause inflammation). This drug is available as an over-the-counter nasal spray that must be used three to four times per day, preferably before symptoms have begun, to effectively prevent the symptoms of allergic rhinitis. Cromolyn sodium has not been associated with any serious side effects.

Saline nasal sprays or washes — Saline (salt water) nasal sprays and washes are effective for minimizing the nasal dryness and postnasal drip that may be associated with AR and its treatment. They also rinse out allergens and irritants from the nose and are used for VMR and mixed-rhinitis. Saline nasal sprays can be purchased over-the-counter and can be used by virtually everyone. Saline washing involves rinsing the nasal passages with larger quantities of salt water from a bulb-syringe, usually 200ml each nostril as often as twice a day. Use prior to dosing with prescription nasal sprays is beneficial. This technique can be helpful in patients who are willing and able to do it. Kits (Neti-Pot[®]) can be purchased over-the-counter or a solution can be made at home.

Home Nasal Saline Solution Recipe:

1 cup tap water
¼ - ½ teaspoon of salt
1 pinch of baking soda
*Keeps 24 hours

Immunotherapy — Immunotherapy (desensitization therapy) refers to injections that are given to desensitize a person to known allergens (also known as allergy shots). This therapy is effective for only certain types of allergens, and is both expensive and time-consuming. It is usually reserved for people who have a poor response to medication therapy. Immunotherapy is usually effective for people with allergies to cat dander and the pollen of trees, weeds, and grass. Immunotherapy is usually started by an allergist. It is not for pure VMR patients.

Other treatments — Nasal atropine is effective for the treatment of severe runny nose of AR, VMR and mixed rhinitis. This drug, available as [ipratropium bromide 0.03%](#) (Atrovent[®]), is excellent for treatment of VMR associated with eating hot and spicy food.

Release of substances called leukotrienes may contribute to the symptoms of allergic rhinitis. Drugs

Allergy 101:

Rhinitis in the College Student

that inhibit the action of leukotrienes, called leukotriene modifiers montelukast (Singulair®), can be very useful in patients with asthma and AR. However, nasal steroids are more effective than leukotriene modifiers for treating allergic rhinitis; thus, they are generally reserved for patients who cannot tolerate nasal sprays (due to nose bleeds) or [azelastine](#).

MANAGEMENT POINTS

- ◆ Seasonal AR will come with the seasons, often spring and fall. Perennial AR can wax and wane all year.
- ◆ VMR will occur all through the year based on trigger exposure.
- ◆ Keep control of allergen and irritant exposures (see Environmental Control).
- ◆ Symptoms may get worse or better with travel or change in geographic location.
- ◆ Treatment options should be added in a step-wise approach, based on symptom frequency, severity, and response to therapy,

Rhinitis Symptom Frequency and Severity

| Mild Intermittent | Moderate-Severe Intermittent | Mild Persistent | Moderate-Severe Persistent |
|--|--|--|--|
| Patient education/allergen avoidance | Patient education/allergen avoidance | Patient education/allergen avoidance | Patient education/allergen avoidance |
| Intranasal Decongestant or oral decongestant | Intranasal Decongestant or oral decongestant | Intranasal Decongestant or oral decongestant | Intranasal Decongestant or oral decongestant |
| Oral or local/topical antihistamine | Oral or local/topical antihistamine | Oral or local/topical antihistamine | Oral or local/topical antihistamine |
| | Intranasal corticosteroid and/or Cromolyn sodium | Intranasal corticosteroid and/or Cromolyn sodium | Intranasal corticosteroid and/or Cromolyn sodium |
| | | Leukotriene modifier | Leukotriene modifier |
| | | | Immunotherapy if other therapies fail |

- ◆ Treatment for rhinitis should be initiated in anticipation of seasonal changes and exposure to irritants. Medications such as nasal steroids that may take time to reach maximum benefit should be started well ahead of anticipated “trouble times.”
- ◆ If multiple medications are used seasonally,

they should be stopped one at a time (one per week) to prevent sudden flare of symptoms. Using the minimum of medication to control symptoms is the goal.

- ◆ Remember, if you have symptoms one season or due to a specific trigger, then you will be at high-risk for having a repeat of symptoms the following season or with the same trigger exposure. Be prepared!

FOLLOW-UP

If you've self treated yourself for rhinitis and are unhappy with symptom control over a week's time, or if clinician prescribed therapies are not successful, please return to SHC for a follow-up visit. Furthermore, we are happy to prescribe therapy for you that has been safe and successful in the past!

CONCLUSION:

Your immune system is a dynamic one and will change with age, thus you have the potential to develop seasonal allergic rhinitis. We also live in an industrialized nation and there are multitudes of irritants in the environment, some areas worse than others; so there will always be a potential to develop vasomotor rhinitis. There are many ways to treat rhinitis; allergen and irritant trigger avoidance, use of medication based on a step-wise approach to symptom frequency and severity, and education on management of the symptoms will result in higher quality of life for you at Virginia Tech.