Allergic Rhinitis Management

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9:45 – 10:30 A.M.
Disclosures

- ALK - speaker
- Monaghan Medical Corporation – speaker
- Novartis - speaker

No conflict

Objectives

- Discuss: Discuss treatment options for allergic rhinitis, including environmental controls and pharmacologic therapy.
- Determine: Determine the appropriate strategies for management of moderate to severe seasonal allergic rhinitis.
- Identify: Identify the role of immunotherapy in the treatment of allergic rhinitis.

Allergic Rhinitis

Allergic rhinitis is a chronic inflammatory disorder of the nasal mucosa caused by IgE-mediated early- and late-phase hypersensitivity responses.

Allergic rhinitis is a serious public health problem because it is associated with high morbidity and heavy socio-economic burden.

- Allergic rhinitis is the most common allergic disease affecting 10% to 40% of the population worldwide.
- 2 million annual lost school days and 6 million lost work days.
- Economic burden: $3.4 billion.


Impact of Poorly Controlled Allergic Rhinitis (AR)

AR has been considered a trivial disease because of the non-life-threatening symptoms:
- Quality of life (QOL)
- Emotional well-being
- Sleep
- Daily activities
- Productivity


Allergic Rhinitis: Immune Mechanism

- **Sensitization Phase:** Development of the Th2 cell response, B cell and allergen-specific IgE response.
- **Early Response:** IgE-mediated mast cell degranulation upon exposure to allergens represents the early response.
- **Late Response:** Recruitment of T cells, eosinophils and basophils.
Pathophysiology

The nasal allergic response

Allergic Rhinitis
- Symptoms are rapid & reproducible
- Onset driven by reactions to seasonal aeroallergens
- Duration of symptoms varies by the length of exposure, geographic location, and climate

Seasonal AR
- Symptoms persist perennially with or without seasonal exacerbations

Perennial AR
- Symptoms occur only after exposure to specific allergens

Defining Phenotypes in Rhinitis
- Allergic Rhinitis
- Chronic rhinosinusitis with or without nasal polyps
- Infectious: Viral, bacterial, fungal rhinosinusitis
- Non-Allergic
- Non-Infectious Rhinitis
- Non-Allergic Rhinitis with Eosinophilia Syndrome (NARES)
- Idiopathic rhinitis-Vasomotor rhinitis
- Hormonal rhinitis
- Gustatory rhinitis
- Drug-induced rhinitis
- Occupational rhinitis

Comorbidities of Allergic Rhinitis

- GERD
- Asthma
- Rhinosinusitis
- Allergic Conjunctivitis
- Sinusitis
- Immunodeficiency
- Defects in mucociliary clearance
- Viral infection
- Systemic diseases
- Anatomical abnormalities

Allergic Rhinitis and its Impact of Asthma (ARIA)

- ARIA is a non-governmental organization which collaborates with the World Health Organization
- Purpose and mission of ARIA is to educate and implement evidence-based management for allergic rhinitis and asthma worldwide
- Guidelines for the management of allergic rhinitis and asthma

Allergic Rhinitis and its Impact of Asthma (ARIA): Change Management

Complications of Allergic Rhinitis

- Sinusitis
- Otitis media
- Nasal polyps
- Sleep apnea
- Dental overbite
- Palate malformations
- Sleep impairment
- Decreased work productivity
- Decreased school performance
- Behavioral
- Psychological

Top Allergens in Buffalo, New York

Our patient with we see in clinic
Subjective Presentation

- Sneezing
- Rhinorrhea
- Ocular and nasal pruritus
- Pruritic palate
- Post-nasal drip
- Frequent throat clearing
- Cough
- Malaise
- Fatigue
- Olfactory dysfunction

Clinical pearl:
Significant complaints of congestion, particularly unilateral, might suggest a structural obstruction, such as a polyp, foreign body, or deviated septum.

Nasal allergy symptoms? Share your misery?

- Please complete the Rhinitis Control Questionnaire (ARCT) below and discuss the results with your healthcare provider.

ARCT is an optimal tool for evaluating the step-down eligibility.

- Each item is scored from 1 to 5
- Total score ranges from 5 to 25
- > 20 is a marker of well-controlled AR

Stepping down AR medications in controlled patients has led to similar clinical outcomes and reduced cost compared with those who maintained their current treatment level.
Medical History

- History of atopy
- Early onset
- Concurrent allergic disorders
- Lower respiratory symptoms
- Predominance of upper airway symptoms
- Correlation with allergen exposure
- Correlation with medications
- Family history

Physical Examination

- Allergic shiners
- Demie-Morgan lines
- Transverse allergic crease
- Gothic arch
- Mucosa:
  - Pallor
  - Hyperemia
  - Edema
  - Clear rhinorrhea
  - post nasal drainage

The classic transverse allergic crease!
Diagnosis of Rhinitis

- Characteristics of symptoms
- Symptoms of other allergic diseases
- Detailed personal and family allergic history
- Physical examination
- Confirmed presence of allergen-specific IgE allergy skin tests and/or in vitro specific IgE tests

Imaging studies
- X-rays have a limited value
- CT scans are preferred for evaluation of sinusitis

Endoscopy
- Usually performed by an ENT physician, allows easy evaluation of the nose, and throat areas

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Nasal Examination

- Moderate congestion right middle nasal turbinate
- Bilateral obstructed OMC
- Minimal left, mild to moderate right ethmoiditis
- Mild bilateral sphenoiditis
Allergic Conjunctivitis

- Intense ocular pruritus
- Hyperaemia
- Watering
- Periorbital edema
- Occurs 50 to 70% of individuals with allergic rhinitis


Chronic Rhinosinusitis with Nasal Polyps (CRSwNP)

- Common inflammatory condition affecting the upper airways, with chronic symptoms:
  - nasal congestion
  - partial (hyposmia) or total (anosmia) loss of smell
  - anterior/posterior rhinorrhea
  - mild facial pain


Biologic Agents for the Treatment of Chronic Rhinosinusitis With Nasal Polyps

- Chronic rhinosinusitis with nasal polyposis is a complex inflammatory disorder, which is often recalcitrant to medical and surgical management. Recently, biologic agents have been studied as an adjunct treatment for this patient population.
- Clinical trials show treatments have promising results and may prove to be an important adjunct for patients with recalcitrant sinus disease
  - benralizumab
  - dupilumab
  - mepolizumab
  - omalizumab
  - reslizumab

Diagnosing Allergic Rhinitis

- Clinical diagnosis is based upon
  - History
  - Reproducible symptoms
  - Presence of risk factors
  - Physical exam
  - Presence of allergen-specific immunoglobulin E (IgE)

Allergy Skin Testing
Percutaneous

Intradermal testing

Oklahoma Allergy and Asthma Clinic, 2016
Pharmacotherapy

ARIA Classification

- **Intermittent**
  - < 4 days per week
  - or < 4 weeks
  - normal sleep
  - no impairment of daily activities, sport, leisure
  - normal work and school
  - no troublesome symptoms

- **Persistent**
  - > 4 days week and
  - > 4 weeks

- **Moderate-severe**
  - one or more items
  - abnormal sleep
  - impairment of daily activities, sport, leisure
  - abnormal work and school
  - troublesome symptoms

ARIA 2018

ARIA Classification

- **Mild intermittent**
  - Intra-nasal steroid
  - Local cromolyn

- **Moderate-severe intermittent**
  - Immunotherapy

- **Mild persistent**

- **Moderate severe persistent**

Allergen and irritant avoidance

Immunotherapy
Goal of Therapy

Block symptoms:

- Block symptoms: histamine-mediated early-phase response within the target tissue
- late phase response: infiltrating immune cells are recruited to the site of early-phase response releasing proinflammatory molecules

Pharmacotherapy

- Allergen avoidance
- Intranasal corticosteroids
- Oral & intranasal antihistamines
- Leukotriene receptor antagonists
- Intranasal anticholinergics
- Intranasal cromolyn
- Decongestant
- Allergen immunotherapy (SCIT/SLIT)
Nasal Sprays

Intranasal Corticosteroid

Initial treatment of nasal symptoms of seasonal allergic rhinitis in patients 12 years of age
monotherapy with an intranasal corticosteroid rather than a combination of an intranasal corticosteroid with
an oral antihistamine

Intranasal corticosteroid over a leukotriene receptor antagonist 15 years of age and older

Moderate to severe symptoms, may recommend the combination of an intranasal corticosteroid and an
intranasal antihistamine


Pharmacologic Options: Intranasal

Intranasal steroids
- Beclomethasone dipropionate - Q-Nasal
- Budesonide - Rhinocort
- Ciclesonide - Omnia
- Ciclesonide - Sotona
- Flunisolide - Nasarel
- Fluticasone furoate - Veramyst
- Fluticasone propionate - Flonase
- Mometasone furoate - Nasonex
- Triamcinolone - Nasacort AQ

Intranasal antihistamine
- Azelastine - Astelin, Astepro
- Chloroquine - Patanase
- Combinations Intranasal
- Azelastine/fluticasone propionate - Dymista

Anticholinergic
- Ipratropium bromide - Atrovent

Mast Cell Inhibitor
- Cromolyn Sodium

Intranasal Decongestion
- Phenylephrine - Neo-Synephrine
- Oxymetazoline – Afrin

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First, shake. Then, using 1 or 2 hands, place your fingers on the indented grip BELOW the mouthpiece. Gently insert the nosepiece into your nose and flexible mouthpiece into your mouth.

KEEP A TIGHT SEAL BETWEEN THE NOSEPIECE AND YOUR NOSTRIL

Take a deep breath and blow hard into the mouthpiece. Imagine you are blowing up a balloon.

BLOW, DON'T SNIFF, AND DON'T BLOCK OTHER NOSTRIL!

Keep blowing as you press the bottle with your thumb, releasing the medicine deep into your nasal passages.

KEEP BLOWING HARD WHILE PRESSING THE BOTTLE

Xhance

- First, shake. Then, using 1 or 2 hands, place your fingers on the indented grip BELOW the mouthpiece.
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- BLOW, DON'T SNIFF, AND DON'T BLOCK OTHER NOSTRIL!
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Nasal Corticosteroids

- Reduce mucosal inflammation
- Reduce late phase reactions and nasal hyperresponsiveness
- Reduce acute allergic reactions
- Suppress mucosal mast cells
- Reduce symptoms and exacerbations

World Allergy Organization, 2011
Intranasal Corticosteroid

Intranasal corticosteroids have the greatest efficacy at relieving all 4 primary symptoms of allergic rhinitis. First-line treatment for allergic rhinitis patients who have moderate to severe disease.

Mechanism of Action:
- Decrease inflammatory cells and inhibit release cytokines
- Epithelial cells are an important target for corticosteroids → INCS concentration is high at the epithelial surface.

Onset of Action: can be < 30 minutes. Peak effect 2 to 3 hours. Maximal effect may require 2 to 4 weeks.

Intranasal Steroids: Minimum Age for Use

<table>
<thead>
<tr>
<th>Drug</th>
<th>Minimum Age for Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beclomethasone</td>
<td>4 years</td>
</tr>
<tr>
<td>Budesonide (Rhiocort Aqua)</td>
<td>6 years</td>
</tr>
<tr>
<td>Ciclesonide (Omnairs)</td>
<td>6 years</td>
</tr>
<tr>
<td>Flunisolde</td>
<td>6 years</td>
</tr>
<tr>
<td>Fluticasone furoate (Veramyst)</td>
<td>2 years</td>
</tr>
<tr>
<td>Fluticasone propionate (Flonase)</td>
<td>4 years</td>
</tr>
<tr>
<td>Mometasone (Nasonex)</td>
<td>2 years</td>
</tr>
<tr>
<td>Triamcinolone acetonide</td>
<td>2 years</td>
</tr>
</tbody>
</table>

Adverse Effects: Nasal Steroids

- Throat irritation
- Nasal dryness
- Burning
- Epistaxis
- Dysguesia
- Complications of growth
Intranasal Antihistamine

**Mechanism of Action**
- H1 antagonist
- Prevention of mast cell and basophil degranulation
- Down-regulation of adhesion molecules and chemokines
- Reduction of inflammatory cytokine expression
- Suppression of neurogenic enhancement of inflammation
- Augmentation of inflammatory cell apoptosis

**Additional Benefits**
- Higher concentration of the drug delivery to the site of reaction
- Improved efficacy for nasal symptoms compared to systemic antihistamines.
- May exert a local anti-inflammatory effect
- Systemic absorption with potential sedation as a side effect
- Sparse effects on comorbid conditions—conjunctival symptoms

**Onset:** 15 to 30 minutes  
**Age:** 5 years Azelastine

**Adverse Effects:** Intranasal Antihistamine
- Bitter taste
- Somnolence
Combination of Intranasal Corticosteroid and Intranasal Antihistamine

- Improvement in the Total Nasal Symptom Score (TNSS) with combination therapy

- Azelastine nasal spray and fluticasone nasal spray in combination may provide a substantial therapeutic benefit for patients with seasonal allergic rhinitis compared with therapy with either agent alone


Intranasal Anticholinergics

Ipratropium bromide

- Anticholinergic (parasympatholytic) agent
- Inhibits vagally-mediated reflexes by antagonizing the action of acetylcholine, inhibits secretions from the serous and seromucous glands lining the nasal mucosa

Onset of action: generally 30 minutes

Age 6 years

Adverse Effects:

- Dryness of the nasal mucosa
- Epistaxis
- Headache
- Urinary retention and glaucoma has been reported

Adherence problems because of administration requirements of two or three times daily
Intranasal Cromolyns

Cromolyn
- Mast cell stabilizer
- Inhibits mast cell release of histamine and other inflammatory mediators by inhibiting the intermediate conductance chloride channel pathways of mast cells, eosinophils, epithelial and endothelial cells, fibroblasts, and sensory neurons
- Blocks symptoms associated with the immediate- and late-phase nasal allergen challenge

**Onset of Action:** 4 to 7 days – full benefit may take weeks
**Minimum age for use:** 2 years

Intranasal Cromolyns

- Used for maintenance treatment of allergic rhinitis
- Episodic rhinitis: administer prior to allergen exposure
- Inadequate data for comparing leukotriene antagonists and antihistamines
- Inferior efficacy of compared to other first-line medications for allergic
- Adherence problems administration requirements of 3 – 4 times daily

Adverse Effects - Cromolyn

Epistaxis
Nasal irritation
Sneezing

Favorable efficacy and safety profile makes their use an acceptable option for preventative measures for nasal allergy symptoms.
Intranasal Decongestants

Ephedrine, pseudoephedrine, xylometazoline

- Potent vasoconstrictor sympathomimetic agents
- Act on adrenergic receptors causing vasoconstriction in the nasal mucosa, resulting in decreased inflammation
- Used for rescue medication for rhinitis with congestion for no longer than 3 to 5 days
- No anti-allergic or anti-inflammatory action
- Nasal decongestants are contraindicated in pregnancy

Onset of Action: within 10 minutes

AGE: should be avoided <6 years, and use caution in 6-12 years and >60, and any patient with cardiovascular conditions

Intranasal Decongestants
Adverse Effects

- Rhinitis medicamentosa
- Nasal irritation

Overuse by patients is common

Oral Agents
Antihistamines
Block H1 receptor

Onset of action: 15 to 30 minutes

Pharmacotherapy: Antihistamine

First Generation
- Chlorpheniramine
- Diphenhydramine
- Hydroxyzine
- Promethazine

Leukotriene receptor antagonists
- Montelukast

Oral decongestants
- Pseudoephedrine
- Phenylephrine

Second Generation
- Cetirizine
- Loratadine
- Fexofenadine
- Levocetrizine
- Desloratadine

Mast cell stabilizer
- Cromolyn Sodium

Antihistamine: First Generation

- Lipophilic
- Readily cross the blood-brain barrier resulting in central nervous system effects
- Limited by adverse effects due to anticholinergic stimulation
- Sedation side effects from early antihistamines can be tolerated in some patients if taken at night before sleep
- Paradoxical stimulation of the CNS can also occur in children

- Ethanolamines – diphenhydramine: Benadryl
- Alkylamines – chlorpheniramine: Chlor-Trimeton
- Piperazines – hydroxyzine: Atarax
- Phenothiazines – promethazine: Phenergan
Antihistamine: Second Generation

- Strong H1 receptor selectivity
- Less permeability through the blood-brain barrier
- Weak anticholinergic action
- Minimal potencies for sedation
- Longer half-life
- Rapid onset
- Less effective for nasal congestion
- Less effective than intranasal steroids for nasal symptoms
- Similar effectiveness to intranasal steroids for ocular symptoms

Minimum age for use

- cetirizine: 6 months
- loratadine: 2 years
- Desloratadine: 6 months
- Fexofenadine: 2 years
- Levocetirizine: 6 months

Adverse Effects: First Generation

- Potential to induce sedation due to significant capacity of crossing the blood-brain barrier
- Anticholinergic effects such as drying of mucous membranes, urinary retention, constipation, tachycardia, and blurred vision (may preclude use in elderly)
- Rapidly metabolized → must be administered three or four times a day
Quality Measures of Prescribing

- Must note for all antihistamines this drug may cause drowsiness
- Labels for pseudoephedrine products must state:
  “Do not take this product if you are now taking a prescription monoamine oxidase inhibitor (MAOI) (certain drugs for depression, psychiatric or emotional conditions, or Parkinson’s disease), or for two weeks after stopping the MAOI drug.”

Leukotriene Receptor Antagonists (LTRAs)

- Block leukotriene receptor
- Reduces the inflammatory response in nasal tissue
- Comparable to oral antihistamine, but less effective than intranasal corticosteroids.
- Concurrent asthma and allergic rhinitis, montelukast can improve both conditions.
  Onset: 2 hours
  Minimum age for use: 6 months

Adverse Events Leukotriene

- Good safety profile
- Occasional reports of:
  - Headache
  - Gastrointestinal symptoms
  - Rash
  - Associated behavioral changes
Decongestants

- **Pseudoephedrine**
  - **Mechanism of Action:** Vasoconstrictor reduces nasal congestion

**Onset of Action:** rapid

**Minimum age for use:** 2 years → usually not started until 4 years old

### Adverse Effects: Decongestant

- Insomnia
- Irritability
- Palpitations
- Tremors
- Hypertension
  - Headache
- Urinary retention
- Tachycardia
- Dizziness
- Elevated intraocular pressure

### Contraindications for Decongestants

- Cardiac disease
- Hypertension
- Kidney disease
- Diabetes
- Glaucoma
- Hyperthyroid
- Prostate disease
- Depression
- Use of MAOI antidepressant
Allergic Conjunctivitis (AC)

Characterized by classical symptoms:
- ocular pruritus
- tearing/watery
- edematous
- chemosis
- redness of the eyes

Symptoms significantly affect health and quality of life!

Antihistamines with mast cell-stabilizing properties

- Reduces the late phase of the allergic response
- Inhibits mast cell degranulation, limiting the release of histamine, tryptase, and prostaglandin D2

- alopentadine - Patanol
- alcaftadine - Lastacaft
- bepotastine - Bepreve
- azelastine HCl - Optivar
- epinastine - Elestat
- ketotifen fumarate - Zaditor
- emedastine - Emadine

Dosing
- Dosing is twice per day for most products.
- Pataday, Pazeo, and Lastacaft are once-daily preparations.

Onset of action is within minutes for most drugs.
- at least two weeks of therapy should be allowed in order to assess the full efficacy of prophylactic therapy with these agents.

Adverse Affects
- Headache
- Increased ocular dryness
- Poor taste

Consider refrigerating the drops before use.
Vasoconstrictor/antihistamine combinations

**Antihistamine:** blocks histamine receptors in the conjunctiva and eyelids, thus inhibiting the actions of the primary mast cell-derived mediator.

**Vasoconstrictor:** activates the postjunctional, alpha-adrenergic receptors found in blood vessels, causing vasoconstriction and decreased conjunctival edema.

**naphazoline and pheniramine**
- Naphcon-A, Opcon-A, Visine-A

Dosing is up to 4 times daily during acute symptoms.
- Short-term (< 2 weeks) or episodic use only.
- Regular use > 2 can lead to rebound hyperemia.
- May have increased eye redness for several days after medication is discontinued.

Mast Cell Stabilizers

- Full efficacy is reached 5 to 14 days after therapy has been initiated.
- Not useful for acute symptoms.
- Dosing of mast cell stabilizers is 4 times daily.
- Because of limitations, mast cell stabilizers are often impractical.
- May provide an option for seasonal allergic conjunctivitis when other therapies are not tolerated.

- cromolyn sodium—Opticrom
- nedocromil—Acroft
- lodoxamide-trimethamine—Alomide
- pemirolast—Alamast

Allergy Immunotherapy

- Modify the underlying cause of the disease, with proved long-term benefits.
- “Despite numerous clinical trials and meta-analyses proving AIT efficacious, it remains understudied and is estimated to be used in less than 10% of patients with allergic rhinitis or asthma worldwide virtually no controversy about the use of AIT in the treatment of allergic rhinitis and allergic asthma.”

Allergy Immunotherapy

British physicians Noon and Freeman were the first researchers to test pollen allergen immunotherapy in a patient cohort.

Noon and Freeman, researchers at the Department of Therapeutic Inoculation at St. Mary's Hospital in London, published their findings in The Lancet in 1911.

Allergy Immunotherapy

Indications

- IgE-mediated disease
- Sensitization is relevant for the symptoms
- Symptoms are severe with a significant duration
- Availability of a standardized high-quality allergen extract of the specific allergen intended to be used for immunotherapy

Contraindications

- Malignant diseases
- Autoimmune diseases
- Current therapy with beta blockers
- Asthma patients with FEV1 below 70% under treatment, or uncontrolled asthma
- Pregnancy at the start of immunotherapy
- Acute infections e.g. common cold with fever

Treatment Failure

- Inadequate dose of allergen in the allergy vaccine
- Missing allergens not identified during the allergy evaluation
- High levels of allergen in the environment
- Significant exposure to non-allergic triggers, such as tobacco smoke

AAAAI, 2019
Immunotherapy: SCIT vs SLIT

- Effective in patients with seasonal rhinitis (high-quality evidence)
- Induces long-term remission (moderate evidence)
- Effective in patients with perennial rhinitis (moderate evidence)
- Indirect evidence suggests SCIT is more effective than SLIT in patients with SAR
- Evidence base in children is less convincing—more studies are needed
- Local side effects (pain and swelling) are common and well tolerated
- SCIT requires administration in a specialist clinic
- Adherence is easily monitored
- Direct comparative evidence versus SLIT is weak, and definitive trials are needed


RCT: ARIA Update 2010

<table>
<thead>
<tr>
<th>No of RCTs</th>
<th>SCIT Recommendations</th>
<th>SLIT Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>24/63 (1 data from meta-analysis)/0</td>
<td>Suggests the use of pollen and HDM SCIT for AR in adults and children and for concomitant AR and asthma</td>
<td>Suggests the use of pollen and HDM SLIT for AR in adults and of pollen SLIT in children</td>
</tr>
<tr>
<td></td>
<td>Does not suggest HDM SLIT in children for treatment of AR</td>
<td>Suggests SLIT in patients with AR plus asthma for asthma treatment</td>
</tr>
</tbody>
</table>

Sublingual Immunotherapy

- Grass pollen
  - Oralair® (Stallergenes Greer) → five kinds of northern grass pollen
  - Grastek® (ALK Inc.) → timothy grass pollen
- Ragweed
  - Ragwitek® (ALK Inc.)
- Dust mite
  - Odactra® (ALK Inc.)

These four allergy tablets provide an additional option for the treatment of allergic rhinitis, rhinoconjunctivitis triggered by dust mite, ragweed or timothy/northern grasses.
Management

Management of Allergic Rhinitis: Patient Education
- Basic pathophysiology of allergic disease
- Allergen avoidance
  - Environmental control measures and allergen avoidance involve both the avoidance of known allergens and avoidance of nonspecific, or irritant, triggers
  - Adherence to the medical treatment regimen
- Pharmacotherapy
  - Oral medications
  - Nasal sprays
  - Immunotherapy

Administering a nasal steroid
House Dust Mite Allergen Avoidance

- Provide adequate ventilation to decrease humidity
- Wash bedding at least weekly at 120° F
- Encase pillow and mattress in allergen impermeable covers
- Use vacuum cleaner with HEPA filter
- Avoid feather bedding
- Consider removing carpet, curtains, pets and stuffed toys from bedroom

Aeroallergen Avoidance Strategies

**Pets**
- Remove pets from bedrooms
- Vacuum carpets, mattresses, upholstery regularly
- Wash pets regularly

**Molds**
- Ensure dry indoor conditions
- Use ammonia to remove mold from bathrooms and other wet spaces

**Cockroaches**
- Eradicate cockroaches
- Eliminate dampness, cracks in floors, ceilings, cover food
- Wash surfaces, fabrics to remove allergen

**Pollen**
- Remain indoors with windows closed at peak pollen times
- Air-conditioning when possible

GLORIA, AAAAI allergic rhinitis practice parameter update recommendations

Patient Education: Nasal Saline Rinse

CDC Preparation Guidelines

Summary

- Despite the availability of guidelines for treatment and good medical regimens, undertreatment of allergy rhinitis is common amongst health care providers.
- Intranasal corticosteroids are the mainstay of treatment for allergic rhinitis.
- Allergic rhinitis is strongly linked with asthma and conjunctivitis.
- Allergen skin testing is the best diagnostic test to confirm allergic rhinitis.
-AIT is an effective immunomodulating treatment that should be recommended if pharmacologic therapy for allergic rhinitis is not effective or not tolerated.
- Both SCIT and SLIT are effective in reducing symptoms and requirement for rescue medication in patients with allergy rhinitis.

Thank you!

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