A Review of Allergic Rhinitis and OTC Treatment Options

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In accordance with the Louisiana Pharmacists Association guidelines, and in compliance with ACPE standards, this presentation has been developed without commercial interest or bias. Content is based on evidence-based science and facts.

Pharmacist Learning Objectives:

1. Review the pathophysiology of allergic rhinitis
2. Discuss the clinical presentation of allergic rhinitis
3. Compare and contrast treatment options for allergic rhinitis
4. Recommend individualized treatment for allergic rhinitis

Technician Learning Objectives:

1. Define allergic rhinitis
2. Recognize the symptoms of allergic rhinitis
3. Identify common allergens that can exacerbate allergic rhinitis
4. Review treatment options for allergic rhinitis found over the counter

Case 1

Case 1

Carey is a 19 y/o student who presents to the pharmacy complaining of runny nose, congestion, and sneezing for the last 4 days. He tells you that his roomate recently adopted a rescue kitten a week ago and he believes his symptoms began shortly afterwards. Carey tells you that he adores the kitten and has allowed him to sleep in his bed while his roommate works at night. Carey reports that he has struggled with studying and working due to the antihistamine that he began 2 days ago though he has had some symptom resolution. He shares that he just needs to be able to function while at school and at work without being sleep and groggy. He denies any drug allergies or chronic health conditions. He reports using Adderall occasionally during the semester as needed for studying. When you inquire about what he is taking for his allergy symptoms, he mentions a pink box but cannot recall the name of the medication.

Case 1 Questions

1. How would you classify Carey's allergic rhinitis?
2. What do you think has contributed to Carey's allergy symptoms?
3. What medication do you believe Carey has been taking to manage his symptoms?
4. What non-drug recommendations would you make to Carey?
5. What drug recommendations would you make to Carey?
6. How would you counsel Carey on the medication that you recommended?

Case 2

Case 2

Sam is a 66 year old who presents to the pharmacy with complaints of runny nose, congestion, and itchy eyes unrelieved by loratadine. He reports that his symptoms worsened when he started spending time at the baseball park with his grandkids roughly 2 weeks this spring. He is currently using Miralax 17gm daily for constipation, HCTZ 12.5mg daily for HTN, metformin 500mg daily for DM, and simvastatin 20mg daily for cholesterol. Sam is retired and spends most of his time at home and with his grandkids. He denies any allergies. He was wondering if he can add diphenhydramine to his medication regimen.

Case 2 Questions

1. How would you classify Sam's allergic rhinitis?
2. What do you think has contributed to Sam's allergy symptoms?
3. What medication do you believe Sam has been taking to manage his symptoms?
4. What non-drug recommendations would you make to Sam?
5. What drug recommendations would you make to Sam?
6. How would you counsel Sam on the medication that you recommended?

Overview of Allergic Rhinitis

Background on Allergic Rhinitis (AR)[1-4,9]

- Definition: overactive immune response to an allergen exposure causing nasal, ocular symptoms
- Also known as seasonal allergies, allergic rhinosinusitis, or hay fever
- Affects 15-30% of US population
- Associated with asthma and sinusitis
- Medical cost associated with managing disorder increasing

Pathophysiology [1,5]

- Four phases-
  - Sensitization Phase: allergen exposure, IgE production
  - Early Phase: production and release of mast cells mediators
  - Cellular Recruitment: leukocytes and eosinophils attract to nasal mucosa
  - Late Phase: mucosal hypertrophy and hypersecretion of mucus, congestion
- Nasal symptoms persist for hours
- Once sensitized, reaction occurs quicker on subsequent allergen exposure

Common Allergens [2,5,8]

OUTDOORS
Pollen
Ragweed
Grass
Mold spores
Pollutants

OCCUPATIONAL
Wool dust
Latex
Resins
Biologic enzymes
Organic dusts
Various chemicals

INDOOR
House-dust mites
Dust
Cockroaches
Mold spores
Cigarette smoke
Pet dander
Perfumes
Detergents
Soaps

Risk Factors [1, 3, 5]

- Family history
- Male gender
- Firstborn
- Exposure to tobacco smoke
- Early antibiotic exposure
- Filaggrin gene mutation
- Fast food consumption

Clinical Presentation [1,3,5,8]

- Symptom Duration
  - Intermittent: <4 days/week or <4 weeks
  - Persistent: ⩾4 days/week or >4 weeks
- Severity
  - Mild: no impact on QOL
  - Moderate - severe: impacts QOL (sleep, performance, etc.)
- Seasonal vs. perennial

Clinical Presentation [5,6]

- Rhinorrhea
- Nasal obstruction
- Sneezing
- Itching
- Postnasal drip
- Cough

Goals of Treatment for AR_5

1. Relieve symptoms
2. Improve functional status (improve QOL)
3. Minimize ADRs related to treatment

Non-Drug Treatment Options

Allergen Avoidance [1,5,6, 10]

- Remove dust collecting objects from home
- Cover mattress and pillows/wash frequently
- Air purifiers
- Dust filters
- Maintain low humidity
- Remove pets/plants from home
- Avoid decaying materials outdoors
- Eliminate indoor mold/mildew
- Bathe animals weekly

Allergen Avoidance [5,10]

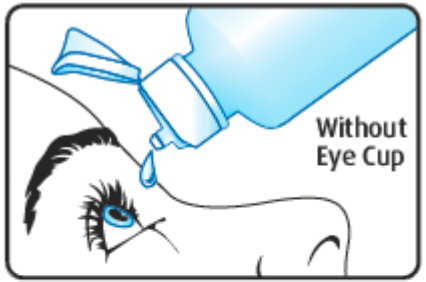
- Store food items in sealed containers
- Engage pest control or use pesticides if needed
- Monitor pollution levels and air quality
- Keep windows closed

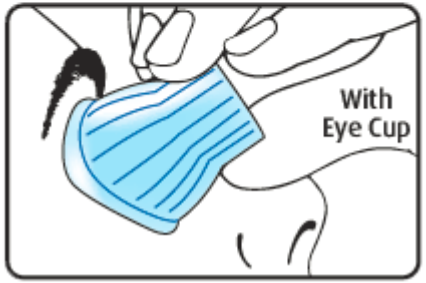
Nasal Irrigation [8,11,12]

- Use wetting agents daily intranasally
  - Saline
  - PEG sprays
  - Gels
- Symptom improvement
- Adjunct therapy
- No safety concerns
- Distilled, sterile, or boiled tap water only

Ocular Care[5]

- Eye wash
- Cool compresses
- Eye protection
- Removal of contacts





Drug Treatment Options

Antihistamines - Oral [1,5,7,8,12]

- Mild to moderate symptom relief
- 1st generation (i.e. diphenhydramine, brompheniramine, chlorpheniramine, doxylamine, clemastine, tropolidine, etc.)
  - Most potent of two generations and least expensive
  - Anticholinergic effects
  - Dosed every 4-6 hours
  - Causes drowsiness, memory impairment
- 2nd generation (i.e. loratadine, cetirizine, fexofenadine, etc.)
  - Most expensive, preferred by most patients
  - Dosed 1-2x daily
  - No anticholinergic effects
  - Non-sedating
  - Comparable efficacy

Antihisatmines

Antihistamines - Ocular 7

- Provide relief of itchy eyes/allergic conjunctivitis
  - Ketotifen fumarate: ages 3+
  - Olopatadine: agest 2+
- May also consider eye wash or artificial tears
- May chill drops prior to use

Ocular Lubricants [13]

- Wash away pollen
- Available as gels, solutions, and ointments
- Different formulations and products should be tried to see what works for each patient
- Preservative-free vs. preservative formulations
- Examples: hydroxypropyl methylcellulose, carboxymethyl-cellulose

Decongestants [4,5,7]

- Cause vasoconstriction by stimulating α-receptors on smooth muscles
- Utilized after nasal obstruction begins
- Taken as needed for symptom relief
- Found OTC and BTC
- Restrictions on purchase quantity for pseudoephedrine
- Nasal and oral formulations available
- Oral formulations may be combined antihistamines or cold products

OTC=over the counter, BTC=behind the counter

Decongestants 7

ORAL

- May cause insomnia, nervousness, ↑BP in those with uncontrolled HTN
- Avoid use in HTN, DM, heart disease, urinary retention, and hyperthyroidism
- Pseudoephedrine is BTC, phenylephrine is OTC

NASAL

- Nasal formulations may cause less systemic effects than oral
- May cause stinging, burning, drying of nasal passages
- Quicker onset due to localized action
- May cause rebound congestion with prolonged use on consecutive days
- Examples: oxymetazoline, naphazoline

Mast Cell Stabilizer [5,7,12]

- Cromolyn sodium
- Stabilizes mast cells; therefore, inhibiting mediator release
- Approved for patients older than 2 years
- Recommended dosage is 1 spray in each nostril 3 to 6 times daily
- Side effects include sneezing, nasal stinging and burning

Intranasal Steroids [1,5,7,8,12]

- Most effective drug class for allergic rhinitis symptoms
- Agents available OTC since October 2013
- Should be used regularly not episodically
- Start one week prior to symptom exposure
- Length of therapy individualized
- Work by stopping the allergic cascade, anti-inflammatory properties
- Only three approved: fluticasone, triamcinolone, budesonide

NEW
GENTLE MIST • SCENT FREE • ALCOHOL FREE
FLONASE
SENSIMIST
ALLERGY RELIEF
Fluticasone Furoate Nasal Spray 27.5 mcg Per Spray
Allergy Symptom Reliever
(Glucocorticoid)*
Full Prescription Strength
Non-Drowsy 24 Hour Relief of:
• Itchy, Watery Eyes
• Nasal Congestion
• Runny Nose
• Itchy Nose
• Sneezing
120
METERED SPRAYS

NEW
FULL PRESCRIPTION STRENGTH • NON-DROWSY
FLONASE
ALLERGY RELIEF
Fluticasone Propionate (Glucocorticoid) 50 mcg Per Spray
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24 HOUR RELIEF
120
METERED SPRAYS

NasalCrom
Nasal Spray
cromolyn sodium
nasal solution USP
NASAL
ALLERGY
SYMPTOM CONTROLLER
PREVENTS
& Relieves
Nasal Allergy Symptoms:
• runny/itchy nose
• sneezing
• allergic stuffy nose
without drowsiness
Full Prescription Strength
Safe For Ages 2 Years & Older
NasalCrom

Original Prescription Strength
RHINOCORT
ALLERGY
SPRAY
Budesonide
Nasal spray, 32 mcg per spray
Nasal Allergy Symptom Reliever
24 HOUR NON-DROWSY RELIEF OF
• Nasal Congestion
• Runny Nose
• Itchy Nose
• Sneezing
RHINOCORT
ALLERGY
SPRAY
Budesonide

Nasacort
Allergy 24HR
24 hour symptom relief
MULTI-PACK • 2 BOTTLES
Original
Prescription Strength
Multi-Symptom
Nasal Allergy Spray
Nasacort
Allergy 24HR
triamcinolone acetonide (glucocorticoid)
24HR
2x 120

Dosing Range and Frequency of Commonly Used Agents [7]

Drug	Age Range	Dosing Frequency
Cetirizine	≥6 months	1-2x daily
Fexofenadine		
Levocetirizine		1x daily
Loratadine	≥2 years	
Budesonide	≥6 years	
Fluticasone	≥2 years	
Triamcinolone	≥2 years	
Cromolyn sodium		3-4x daily

Indications Based Upon Symptoms [4,7]

Medications and Symptoms	Sneezing	Rhinorrhea	Nasal Obstruction	Itchiness	Ocular Symptoms
Oral Antihistamines	✔	✔		✔	✔
Ocular Antihistamines					✔
Oral Decongestants			✔		
Nasal Decongestants			✔		
Mast Cell Stabilizer	✔	✔	✔	✔	
Nasal Steroids	✔	✔	✔	✔	✔

Special Populations [4,5]

- Children
  - Note age for dosing and use of different agents
  - Limit use of 1st generation oral antihistamines
  - Nasal steroids at lowest effective dose has evidence of benefit
- Elderly
  - Restrict use of 1st generation oral antihistamines
  - Use caution with oral decongestants
  - Nasal formulations usually safest options
- Pregnancy
  - Allergen avoidance if possible
  - Cromolyn sodium is first line therapy
  - Oral antihistamines or nasal steroids can be used as second line therapy
  - Pseudoephedrine may be used after 1st trimester with MDs approval

Patient Counseling

- Allergen avoidance
- Proper use of OTC medication
- Proper technique for using nasal formulations
- Highlight common adverse effects
- Ensure patient not taking medications that may interact with recommended OTC therapy
- Duration of OTC therapy
- Share information about combination products if applicable

Case 1

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Case 2 Questions

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References:

1. Wheatley LM, Togias A: Allergic rhinitis, N Engl J Med 372:456-463, 2015.
2. All About Allergies. Allergy & Asthma Network website. Accessed February 20, 2021. https://allergyasthmanetwork.org/allergies/
3. deShazo RD, Kemp SF. Allergic rhinitis: Clinical manifestations, epidemiology, and diagnosis. UpToDate website. Updated January 20, 2020. Accessed February 20, 2021. https://www.uptodate.com/contents/allergic-rhinitis-clinical-manifestations-epidemiology-and-diagnosis/
4. Hur SY. Allergic Rhinitis. The RX Consultant. March 2007. Vol XVI, No 3.
5. Krinsky, D. L., Ferreri, S. P., Hemstreet, B., Hume, A., Rollins, C. J., & Tietze, K. J. (2020). Handbook of nonprescription drugs: An interactive approach to self-care. In *Handbook of nonprescription drugs: An interactive approach to self-care* (20th ed.). Washington, DC: American Pharmacists Association. doi:https://doi.org/10.21019/9781582123172.ch11
6. Laine C, Goldman DR, Wilson JF. Allergic rhinitis. *Ann Intern Med*. 2007;146(7):ITC4-1. https://www.acpjournals.org/doi/abs/10.7326/0003-4819-146-7-200704030-01004. doi: 10.7326/0003-4819-146-7-200704030-01004.

References

7. Med Lett Drugs Ther. 2017 May 8;59(1520):71-82.
8. Schuler IV CF, Montejo JM. Allergic rhinitis in children and adolescents. *Pediatr Clin North Am*. 2019;66(5):981-993. https://www.sciencedirect.com/science/article/pii/S0031395519300847. doi: https://doi.org/10.1016/j.pcl.2019.06.004.
9. Meltzer EO. Allergic Rhinitis Burden of Illness, Quality of Life, Comorbidities, and Control. Immunol Allergy Clin N Am 36 (2016) 235–248. http://dx.doi.org/10.1016/j.iac.2015.12.002
10. American College of Allergy Asthma & Immunology. Allergic Rhinitis. Overview. http://acaai.org/allergies/types/hay-fever-rhinitis (Accessed February 23, 2021).
11. Is Rinsing Your Sinuses With Neti Pots Safe? *FDA*. Published online February 9, 2019. https://www.fda.gov/consumers/consumer-updates/rinsing-your-sinuses-neti-pots-safe. (Accessed February 23, 2021).
12. deShazo RD, Kemp SF. Pharmacotherapy of Allergic Rhinitis. UpToDate Website. Updated August 4, 2020. Accessed February 23, 2021. https://www.uptodate.com/contents/pharmacotherapy-of-allergic-rhinitis?search=allergic%20rhinitis&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#H5476779
13. Fiscella R, Jensen MK. Chapter 28: Ophthalmic disorders. In: *Handbook of nonprescription drugs: An interactive approach to self-care, 20th edition.* The American Pharmacists Association; 2020. https://doi.org/10.21019/9781582123172.ch28. 10.21019/9781582123172.ch28.

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