ALLERGIC RHINITIS

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Overview

Allergic rhinitis is the IgE mediated inflammation of nasal mucosa after allergen exposure. It is a major chronic respiratory disease because of its high prevalence and high morbidity in poorly managed patients. Anyone diagnosed with allergic rhinitis should also be screened for asthma because of the high co-morbidity rate.[1,2]

Diagnostic Considerations[1,2,3,4,5]

Clinical History

- symptoms classified as INTERMITTENT or PERSISTENT
  - o rhinorrhea, nasal obstruction, nasal and or occular puritis, paroxysmal sneezing, fatigue, lightheadedness
- precipitating factors (e.g. animal dander, dust mites, and pollen)
- seasonal or perienial
- personal or family history of allergy or atopic disease

Physical Examination

- nasal mucosa often swollen, moist, pale or bluish colour
- clear nasal discharge
- allergic shiners (i.e. dark circles under eyes from nasal vascular congestion)
- allergic salute (i.e. horizontal crease across nasal tip from repeated up stroking of nasal base)
- red eyes

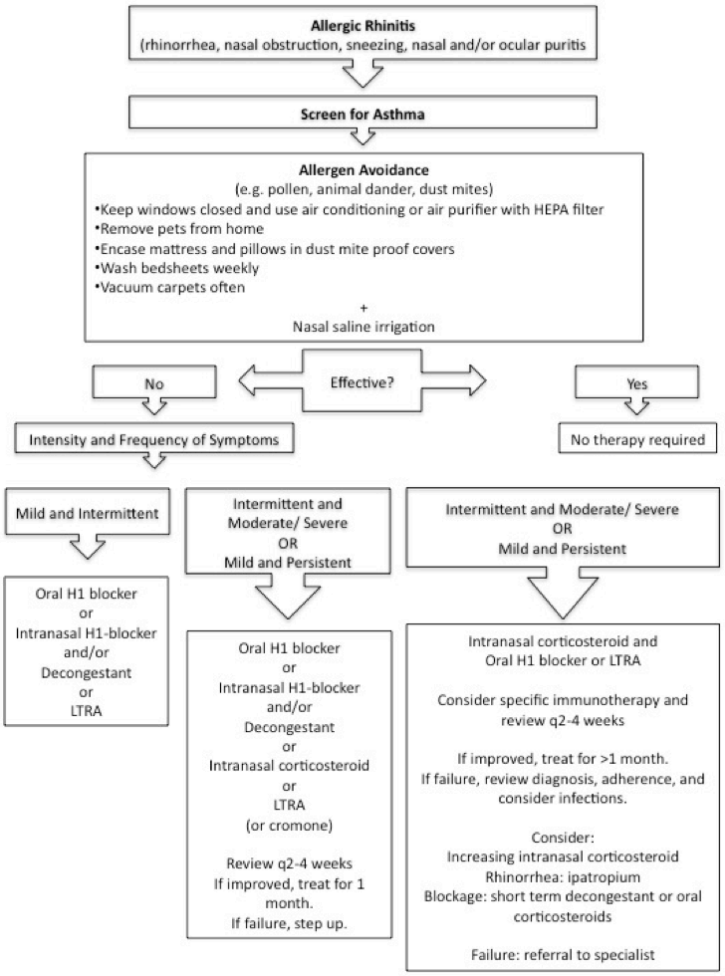
Investigations

- only when indicated
- skin prick testing to confirm allergic sensitivity and identify specific triggers
- nasal endoscopy to rule out anatomical abnormalities (i.e. nasal polyps, deviated nasal septum)
- pulmonary function testing to rule out asthma

Differential Diagnosis

- viral rhinitis – often associated with sore throat and fever; not usually itchy
- vasomotor rhinitis – predominately nasal obstruction and rhinorrhea, other symptoms less frequent; may be triggered by smoke, temperature changes, strong odours, cold air, exercise, hot or spicy foods, strong emotions, sexual arousal, hormonal changes (i.e. pregnancy)
- nasal polyps – nasal obstruction with anosmia and reduced taste; may see polyp on exam

Treatment Algorithm[1,3] (adapted from fig. 1)



*Based on ARIA (Allergic Rhinitis and its impact on Asthma) guidelines: mild symptoms = no change in quality of life; intermittent symptoms = <4 d/wk or <4 wk; moderate-severe symptoms = impairments of daily activities (one or more of sleep, work, school, troublesome symptoms); persistent symptoms = >4 d/wk or >4 wk.

Pharmacotherapy for Allergic Rhinitis[1,3,5]

Drug	Dose	Adverse Effects	Drug Interactions	Comments
H1-Antihistamine, 1st generation Diphenhydramine (Benadryl® preparations Cost: $	≥12 y: 25-50 mg Q6-8H; max 4 doses per day 6-11 y: 12.5-25 mg Q4-6H; max 8 doses per day **Counsel parents (see comments): 2-5 y: 6.25 mg Q4-6H; max 4 doses per day <2 y: 3.125 mg Q4-6H; max 4 doses per day	• Sedation, fatigue, dizziness, impairment of cognition • Mouth/eye dryness, constipation, urinary retention, precipitation of narrow-angle glaucoma • Risk anticholinergic effects in elderly and paradoxical excitation in young children	• Increased CNS depressant with Alcohol, sedatives, TCA's, opioids, barbiturates	• Not recommended in Allergic rhinitis due to unfavourable efficacy/ safety ratio ** Health Canada Advisory: Some OTC products, including 1st generation antihistamines not for use in children <6 years old unless under advice of physician.

Dr. Michael Evans developed the One-Pager concept to provide clinicians with useful clinical information on primary care topics.

H1-antihistamines, 2nd generation (not covered by ODB)		• Less adverse effects than 1st generation • Dose dependent somnolence, fatigue, dry mouth, dizziness, headache, diarrhea, nausea, vomiting, pharyngitis	• Fexofenadine: reduced efficacy of with concurrent use of antacids (aluminum and magnesium antacids), and fruit juices (grapefruit, apple, orange) • Loratadine: risk of prolonged QT with concurrent use of Amiodarone. Cimetidine may increase loratadine levels (sedation, or anticholinergic effects)	• First line in mild-moderate disease. Not effective alone for nasal congestion • Most are safe and well tolerated in children • Discontinue 3 days prior to skin allergy testing
Cetirizine (Reactine®) Cost: $-$$	≥12 y: 5-10 mg/day; max 20 mg/day 6-12 y: 5-10 mg/day 2-6 y: 2.5-5 mg/day			
Fexofenadine (Allegra® 12 Hour) Cost: $$-$$$	≥12 y: 60 mg Q12H Not recommended for use in children age <12 years.			
Loratadine (Claritin®, Claritin Kids® Cost: $	>10 y (> 30kg): 10 mg once daily 2-9 y (≤ 30kg): 5 mL (5 mg) once daily			
Desloratadine (Aerius®, Aerius Kids®) Cost: $$	≥12 y: 5 mg daily 6-11 y: 5 mL (2.5 mg) once daily. 2-5 y: 2.5 mL (1.25 mg) once daily			
Oral decongestants Pseudoephedrine (Sudafed® Decongestant 12 Hour) Cost: $ Phenylephrine, (Sudafed® PE Decongestant) Combination oral Decongestant-Antihistamine Phenylephrine 5mg, Chlorpheniramine 2mg and Acetaminophen 325mg (Dristan®)	≥12 y: 120 mg SR Q12H; max 240 mg/day ≥12 y: 10 mg Q4H; max 60 mg/ day. ≥12 y: 2 tablets every 4-6 hours not to exceed 8 tablets daily.	• Insomnia, tremor, irritability, headache, palpitations, tachycardia, urinary retention • Refer to adverse effects for decongestants and antihistamines individually	• MAOIs: as it may result in hypertensive crisis (headache,hyperpyrexia, hypertension) • B-blockers: may reduced antihypertensive effect • Refer to drug interactions for decongestants and antihistamines individually	• Indicated in combination with oral H1-antihistamines to reduce congestion • Not recommended for use in children age <12 years old. • Contraindicated in severe HTN, CAD, or with concurrent use or recent use (≤ 14 days) of MAOI's
Oral Leukotriene Receptor Antagonist Montelukast (Singulair®)	≥15 y: 10 mg QHS	• Headache, flu-like symptoms, abdominal pain	• Cabamazepine, rifampin, phenobarbital, and phenytoin may decrease montelukast levels	• Effective on all symptoms of rhinitis and on ocular symptoms • Similar efficacy to oral antihistamines

Intranasal corticosteroids				
Beclomethasone dipropionate (Beconase Aq) Cost: $$-$$$ Covered by ODB	Aqueous suspension: ≥6 y: start 2 sprays each nostril twice daily; max 8 sprays/ day in children and 12 sprays/ day in adults	• Nasal and throat irritation, burning, stinging, crusting, nosebleeds, headache • Prolonged use may increase intraocular pressure in some patients • Growth slightly reduced only with Beclomethasone after regular treatment over 1 year		• Most effective treatment in Allergic Rhinitis • First-line for moderate/ severe disease • Effective on all nasal and ocular symptoms of allergic rhinitis • Has slow onset (12 hr) with maximal effect after a few days- weeks • Steroid sprays can be started before allergen exposure period and taken regularly until end of the season in those with predictable seasonal allergic rhinitis • Aim spray towards turbinates and away from septum
Budesonide (Rhinocort® Aqua ™, Rhinocort® Turbuhaler ™ Cost: $$-$$$ Covered by ODB	Aqueous suspension: ≥6 y: start 2 sprays each nostril once daily or 1 spray each nostril BID; decrease to 1 spray each nostril daily Turbuhaler powder: ≥6 y: 2 applications each nostril once daily.			
Ciclesonide (Omnaris®) Cost: $$$ Covered by ODB	≥12y: 2 sprays each nostril once daily			
Flunisolide (Rhinalar) Cost: $$-$$$ Covered by ODB	Adults: 2 sprays each nostril BID-TID; max 6 sprays each nostril/ day 6-14 y: 1 spray each nostril TID.			
Fluticasone furoate (Avamys®) Cost: $$$	≥12 y: 2 sprays each nostril once daily 2 to 11 y: 1 spray each nostril once daily; max 2 sprays each nostril once daily			
Fluticasone propionate (Flonase®) Cost: $$$	≥12 y: 2 sprays each nostril once daily; max 2 sprays each nostril BID 4-11y: 1-2 sprays each nostril once daily			
Mometasone furoate (Nasonex®) Cost: $$$	≥12 y: 2 sprays each nostril once daily; max 4 sprays each nostril daily 3-11y: 1 spray each nostril once daily			
Triamcinolone acetonide (Nasacort® AQ) Cost: $$$	≥12 y: 2 sprays each nostril once daily 4-12y: 1 spray each nostril once daily; max 2 sprays each nostril once daily; decrease to 1 spray each nostril once daily			

Drug	Dose	Adverse Effects	Drug Interactions	Comments
Intranasal Anticholinergic Ipratropium bromide (Atrovent® Nasal Spray 0.03%)	≥12 y: 2 sprays each nostril BID-TID	• Nasal dryness, nosebleeds, urinary retention, precipitation of narrow-angle glaucoma		• Effective for rhinorrhea only
Intranasal H1-Antagonist (antihistamine) Levocabastine (Livostin® Nasal Spray)	12-65 y: 2 sprays per nostril BID; max 2 sprays 3-4 times daily.	• Nasal irritation		• Effective on nasal or ocular symptoms, with rapid onset of action (< 30min). Discontinue after 3 days if no improvements
Intranasal Decongestant Oxymetazoline, (Dristan® Long Lasting Nasal Mist, 0.05%). **Combination Decongestant-Antihistamine** Phenylephrine HCL 0.5% - pheniramine maleate 0.2% (Dristan® Nasal Mist)	≥12 y: 2-3 sprays each nostril Q12H; max 2 doses/ day. ≥12 y: 2-3 sprays each nostril Q4H as required.	• Similar adverse effects to oral decongestants but less intense • Nasal irritation, increased rhinorrhea • Refer to adverse effects for decongestant and antihistamine		• For nasal congestion only • Not recommended for use in children age <12 years old • More effective and more rapid onset of action (<10 min) than oral decongestants • Overuse (> 7-10 days leads to rebound congestion • Refer to oral decongestants
Intranasal Mast Cell Stabilizer Sodium Cromoglycate 2% (Rhinaris® CS)	≥5 y: 1 sprays each nostril 6 times daily. Reduce to 2-3 times/ day	• Minor local adverse effects		• Safe to use. Weak and short-acting effect on nasal symptoms

Immunotherapy[2,3]

Allergy shots can improve symptoms long-term, especially if caused by pollen or dust mites. They are indicated when there is evidence of IgE mediated sensitivity to a specific allergen that is impossible to avoid, and symptoms are difficult to control with a negative impact on the activities of daily living.

When to refer?[2,3]

Refer to an allergist or immunologist when there is a need for allergen immunotherapy, inadequate control of symptoms despite compliance and correct use of therapies, adverse reactions to medications, desire to identify sensitizing allergens, reduced quality of life secondary to rhinitis, and co-morbid conditions such as asthma or recurrent sinusitis.

References can be found online at http://www.dfcm.utoronto.ca/programs/postgraduateprograme/One_Pager_Project_References.htm