New Tendencies in Rhinitis Treatment
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Purpose

Focus on new strategies and advances in treatment of Non-allergic and Allergic Rhinitis.
Definition

**Rhinitis**

- Inflammatory disease of the nasal mucous membrane
- Major Symptoms complex (MSC):
  - nasal congestion
  - rhinorrhea
  - sneezing
  - nasal itching
- Total Symptom Complex (MSC + extra-nasal Sx)
  - postnasal drainage (posterior rhinorrhea)
  - cough
  - itchy eyes, ears, throat or palate
Incidence of Rhinitis*

- Allergens alone: 18%
- Nonallergic triggers alone: 7%
- Combination of allergens and nonallergic triggers: 75%

* NRCTF/1998
WAO Classification

- **Uses symptoms and quality of life parameters**
- **Duration**
  - Persistent
    - Symptoms on > 4 days/week and for > 28 days at a time
  - Intermittent
    - Symptoms on < 4 days/week or for < 28 days at a time
- **Severity**
  - Mild (no sleep, no impairment in QOL, no effect on school or job performance, no significant symptoms)
  - Moderate (one or two of above parameters impaired)
  - Severe (two or more of above parameters impaired)
Rhinitis Classification*

- **Allergic**
  - **Intermittent**
    - pollens of trees, grasses & weeds
    - molds (rainy season)
  - **Persistent**
    - mites
    - molds
    - insects proteins
    - animals epithelium

* Joint Task Force of the AAAAI & AACAAI 1998 / NRCTF
Rhinitis Classification:

- **Non-Allergic**
  - Vasomotor (perennial non-allergic)
  - NARES (Non-allergic Rhinitis & Nasal eosinophilia)
  - Infectious (Viral, Bacterial or Fungal)
  - BENARS (Blood eosinophilia + NARES)
  - Hormonal (puberty, menstrual cycle, pregnancy and endocrine disorders)
  - Gustatory & Food-Related
  - Drug-Induced / Medicamentosa
  - Occupational

* Joint Task Force of the AAAAI & AACAAI 1998 / NRCTF
# Differential Diagnosis Between Allergic and Nonallergic Rhinitis

<table>
<thead>
<tr>
<th>Manifestation</th>
<th><strong>Allergic Rhinitis</strong></th>
<th><strong>Chronic Nonallergic Rhinitis</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of onset</td>
<td>Usually before 20</td>
<td>Usually after 30</td>
</tr>
<tr>
<td>Seasonality</td>
<td>Usually w seasonal variation, spring and fall</td>
<td>Perennial, but worse during weather Δ’s fall &amp; early spring</td>
</tr>
<tr>
<td>Exacerbating factors</td>
<td>Allergen exposure</td>
<td>Irritant exposure and weather conditions</td>
</tr>
<tr>
<td>Nature of symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pruritus</td>
<td>Common</td>
<td>Rare</td>
</tr>
<tr>
<td>Congestion</td>
<td>Common</td>
<td>Common</td>
</tr>
<tr>
<td>Sneeze</td>
<td>Prominent</td>
<td>Not prominent, but can be dominant</td>
</tr>
<tr>
<td>Postnasal drainage</td>
<td>Not prominent</td>
<td>Prominent</td>
</tr>
<tr>
<td>Extra nasal manifestations i.e. AC, AD</td>
<td>Usually present</td>
<td>Usually absent</td>
</tr>
</tbody>
</table>
## Differential Diagnosis Between Allergic and Nonallergic Rhinitis (continued)

<table>
<thead>
<tr>
<th>Manifestation</th>
<th>Allergic Rhinitis</th>
<th>Chronic Nonallergic Rhinitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family history</td>
<td>Usually present</td>
<td>Usually absent</td>
</tr>
<tr>
<td>Physical appearance</td>
<td>Variable, classically described as pale, boggy swollen- may appear normal</td>
<td>Variable, erythematous</td>
</tr>
<tr>
<td>Ancillary studies</td>
<td>Allergy skin tests always positive</td>
<td>Allergy skin tests negative</td>
</tr>
<tr>
<td>Nasal eosinophilia</td>
<td>Usually present</td>
<td>Present 15-20% of the time (NARES)</td>
</tr>
<tr>
<td>Peripheral eosinophilia</td>
<td>Often present, especially during allergy season</td>
<td>Often absent, 1-2% of the time (BENARS)</td>
</tr>
</tbody>
</table>
PATHOPHYSIOLOGY

- Nasal hyper-reactivity
- Mast cell degranulation
  - Mediator release (histamine & TAME-esterase)
  - Superoxide generation
  - Newly formed mediators (PG’s, LTAs)
- Inflammatory cell infiltration
  - Eosinophils, Lymphocytes, Neutrophils and Plasma cells
- Neurogenic dysregulation
  - Autonomic
    - Non-adrenergic / Non-cholinergic (Substance P)
  - Nasal reflexes
    - Cholinergic
## Symptoms and Mediators in Rhinitis

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Pathophysiology</th>
<th>Mediator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstruction</td>
<td>↑ vascular permeability and vasodilatation</td>
<td>Histamine, kinins, leukotrienes, neuropeptides</td>
</tr>
<tr>
<td>Rhinorrhea</td>
<td>Direct action on sensory nerve fibers</td>
<td>Histamine</td>
</tr>
<tr>
<td></td>
<td>Reflex, cholinergic activity</td>
<td>Neuropeptides, Leukotrienes</td>
</tr>
<tr>
<td>Sneeze</td>
<td>Stimulation of sensory nerve fibers</td>
<td>Histamine</td>
</tr>
<tr>
<td>Nasal hyperirritability</td>
<td>Infiltration of cells, i.e. eosinophils &amp; basophils</td>
<td>Platelet activating factor, TNF, Interleukins</td>
</tr>
<tr>
<td>Nasal itching</td>
<td>Stimulation sensory nerves</td>
<td>Histamine</td>
</tr>
<tr>
<td>Loss of smell</td>
<td>Chronic inflammation</td>
<td>Summation effect of multiple mediators</td>
</tr>
</tbody>
</table>
DIAGNOSIS

• HISTORY

• PHYSICAL EXAM
  - Fiberoptic nasal endoscopy
  - Rhinomanometry

• LABS
  - Nasal smear, Nasal cytology
  - Total serum IgE (RIST)
  - Specific IgE (RAST)

• SKIN TESTING  (Epicutaneous or Intradermals)
General Purpose:

- Restore patency of nasal airway
- Control nasal secretions
- Control nasal hyper reactivity
- Control inflammation
- Treat complications like bacterial infections
MANAGEMENT

- Education and Prevention
  - Natural History of the process
  - Environmental Control Measures
    - Barrier
    - Control Relative Humidity
    - Decrease exposure
- Pharmacotherapy
- Immunotherapy
Pharmacotherapy

- IN/PO Antihistamines
  - 1st, 2nd y 3rd generation
- IN/PO Decongestants
- PO Antihistamines/Decongestants Combo
- IN/PO Corticosteroids
- IN Cromoglycates
- IN anti-cholinergics
- PO anti-leukotrienes
Step-wise approach to Management

- **Mild Intermittent**
  - IN Anti-H1, PRN
  - or
  - PO Anti-H1, PRN
    - And/or
  - IN Cromoglycate, PRN

- **Moderate/Severe Intermittent**
  - PO Anti-H1, q.d. x 4 to 12 weeks
    - and
  - PO Decongestant, q.d. x 2 weeks
    - and
  - IN CCs (low dose) and/or IN Anti-H1 or IN Ipratropium 4 to 12 weeks and/or
  - IN CCs/Anti-H1 combo (if severe symptoms)
Step-wise approach to Management

- **Mild Persistent**
  - IN CCs (low dose), q.d. 4 weeks
    - and
  - PO Anti-H1, q.d. x 4 to 12 weeks
    - And/or
  - PO Decongestant, q.d. x 2 to 4 weeks
    - Or PO Anti-H1/Decongestant Combo, q.d. x 4 weeks
    - And
  - IN Anti-H1 or IN Ipratropium, bid x 2-4 weeks
    - and/or
  - PO Anti-Leukotrienes, x 4 weeks
Step-wise approach to Management

• **Moderate/Severe Persistent**
  - PO Anti-H1/ Decongestant combo, q.d. > 4 - 12 wks
    - and
  - IN CCs (high potency dose), bid x 4 weeks and
  - IN Ipratropium (if rhinorrhea) and/or
  - IN Anti-H1 (if sneezing and nasal itch) and/or
  - PO Anti-Leukotrienes and/or
  - PO CCs x 5-7d (if congestion)
  - Consider Neutralizing Immunotherapy
MANAGEMENT

• IMMUNOTHERAPY

  ▪ INDICATIONS

   ▪ Failure or unacceptability of other Tx modalities.
   ▪ Presence of co-morbid conditions.
   ▪ Prevention of worsening of the condition or the development of co-morbid conditions.
   ▪ Moderate to severe persistent symptoms.
MANAGEMENT

IMMUNOTHERAPY:

- Conventional (Progressive dose I.T.)
  - Long term
  - Anti-IgE blocking antibodies
  - For Environmental triggers

- Neutralizing (Optimal dose I.T.)
  - Short term
  - T-lymphocytes manipulation
  - For foods, chemicals and certain irritants
The main pathophysiologic processes in rhinitis are:
- Inflammation
- Nasal Hyper reactivity
- Neurogenic Dysregulation

A step-wise approach to management is recommended, emphasizing individualization of treatment, based on the spectrum and severity of symptoms.

Immunotherapy is the only causal-specific treatment that could be used as adjunct to pharmacotherapy and environmental control measures.