

Pharmacology

Drugs used to treat:

Asthma

Rhinitis & Cough

Topics

- Bronchodilators
- Methylxanthines
- Anticholinergics
- Anti-inflammatory Agents
- Leukotriene Antagonists
- Mast cell stabilizers

- Decongestants
- Antihistamines
- Antitussives
- Expectorants & mucolytics

Asthma

- Inflammatory response to allergen
- Antibody binds with & ruptures mast cells
 - Releases histamine, prostaglandins, leukotrienes
- Two primary issues
 - Bronchoconstriction
 - Inflammation (mucous production)

Approaches to Treatment

- Relax bronchial smooth muscle
 - β_2 agonists
 - methylxanthines
 - anticholinergics
- Inhibit release of mediators
 - Glucocorticoids
 - Mast cell stabilizers
- Block effects of mediators
 - Leukotriene antagonists

Bronchodilators

β_2 agonists	albuterol (Proventil®), metaproterenol (Alupent®) terbutaline (Breathair®)
Nonselective	epinephrine (Adrenalin®)
Methylxanthines	theophylline (TheoDur®) aminophyllin, (Aminophylline®)
Anticholinergics	ipratropium bromide (Atrovent®)

Antiinflammatory Agents

Glucocorticoids	
inhaled	beclomethasone (Beclovent [®]) fluticasone (Flovent [®])
oral	prednisolone (Deltasone [®])
injected	methylprednisolone (Solu-Medrol [®]) dexamethasone (Decadron [®])
Mast cell Stabilizer	cromolyn (Nasalcrom [®] , Intal [®])
Leukotriene Antagonists	zafirlukast (Accolate [®]) zileuton (Zyflo [®])

Colds and Allergies

- Nasal Inflammation
 - Vasodilation & engorgement
- Itching, redness, rhinorrhea
 - Mast/basophil degranulation

Nasal Decongestants

- ↓↓ congestion via vasodilation
- Alpha₁ stimulation
 - Topical administration

- phenylephrine (Neo-Synephrine[®])
- pseudoephedrine (Sudafed[®], Actifed[®])
- A moment of silence for:
 - phenylpropanolamine (AlkaSeltzer Cold[®], Contact[®], Allerest[®])

Antihistamines

- H₁ receptors
 - Vasodilation
 - Increased capillary permeability
 - Bronchoconstriction
- H₂ receptors
 - Increase gastric acid secretion (Zantac[®]), etc)
- Other histamine receptors
 - Sedation

Antihistamine Agents

- First generation
 - Sedation
- chlorpheniramine (Chlor-Trimeton[®])
- diphenhydramine (Benadry[®])
- clemastine (Tavist[®])
- promethazine (Phergan[®])

- Second generation
 - No sedation
 - blood-brain barrier
- Sniff, sniff:
 - terfenadine (Seldane[®])
- fexofenadine (Allegra[®])
- cetirizine (Zyrtec[®])
- loratadine (Claritin[®])

Cough Suppressants

- Antitussives

- Decrease cough reflex
- Opioids
 - codeine & hydrocodone
- Non-opioids
 - dextromethorphan
 - benzonatate (Tessalon®)

- Expectorants

- guaifenesin may work
- others are doubtful

- Mucolytics

- Decreases viscosity
- acetlycysteine (Mucomyst®)
- hypertonic saline

Thank You!

- To Temple College EMS Professions for permission to use their materials

