— Drugs for Disorders of the Respiratory System

1-<u>Asthma</u> is characterized clinically by Chest tightness Wheezing Reversible narrowing of bronchial airways Marked bronchial responsiveness to inhaled stimuli.

Pathophysiology of asthma: Airflow obstruction in asthma is due to bronchoconstriction that results from contraction of bronchial smooth muscle, inflammation of The bronchial wall, and increased secretion of mucus.

CLASSIFICATION OF DRUGS USED TO TREAT ASTHMA

Bronchodilator :

1-Adrenergic drug

Drugs stimulating beta receptors (isoprenaline) Selective beta 2 stimulants (salbutamol, terbutaline, salmeterol, formeterol).

2-**METHYLXANTHINES**

Methylxanthines are purine derivatives Theophylline found in tea is the only member used in the treatment of asthma – Aminophylline

3-ANTICHOLINERGICS (ipratropium).

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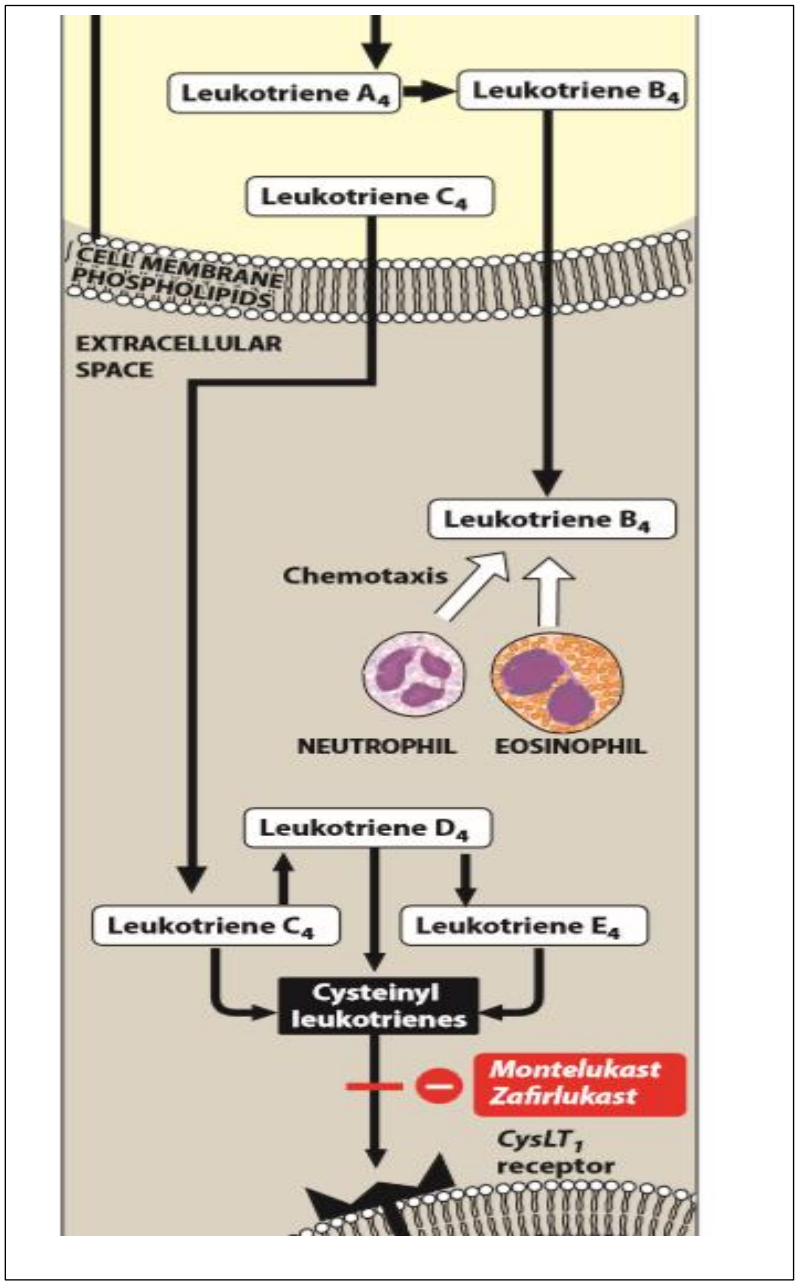

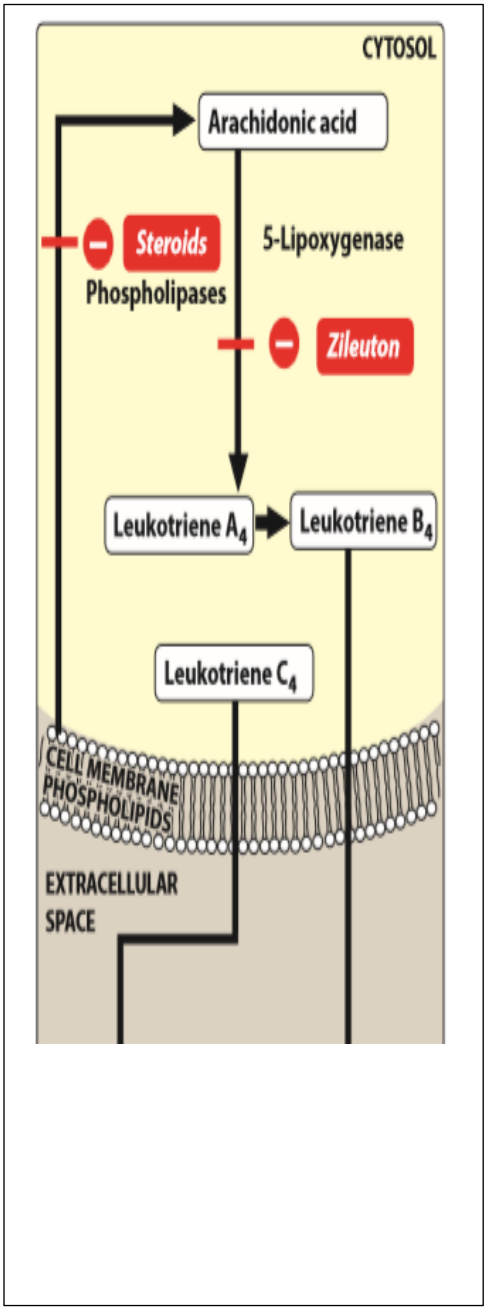

/ **Anti-inflammatory drugs:**

Montelukast is a leukotriene receptor antagonist (LTRA) used for the maintenance treatment of asthma and to relieve symptoms of seasonal allergies.

- Zafirlukast is an oral leukotriene receptor antagonist (LTD4) for the maintenance treatment of asthma.
- Zileuton is an orally active inhibitor of 5-lipoxygenase, and thus inhibits leukotrienes (LTB_4, LTC_4, LTD_4, and LTE_4) formation. Zileuton is used for the maintenance treatment of asthma.

MAST CELL STABILIZERS

Cromolyn (disodium cromoglycate) and nedocromil,ketotifen
They are given by aerosol for asthma.

CORTICOSTEROIDS

All corticosteroids are potentially beneficial in severe asthma.
Local aerosol administration of corticosteroids (e.g, dexamethasone, fluticasone,)
Important intravenous corticosteroids for status asthamaticus include prednisolone and hydrocortisone.

Mechanism of action

Corticosteroids reduce the synthesis of arachidonic acid by phospholipase A_2, and inhibit the expression of COX -2. It has been suggested that corticosteroids increase the responsiveness of beta adrenoceptors in the airway.

2-Chronic obstructive pulmonary disease (COPD)

is a chronic, irreversible obstruction of air flow. Smoking is the greatest risk factor for COPD and is directly linked to the .progressive decline of the lung function

A. Bronchodilators Inhaled bronchodilators, including the β2-adrenergic agonists and anticholinergic agents (ipratropium and tiotropium [tye-oh-TROEpee-um]), are the foundation of .therapy for COPD

B. Corticosteroids

3- cough

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is a natural reflex that is your body's way of removing irritants from your upper (throat) and lower (lungs) airways. A cough helps your body heal and protect itself.

Types of coughs may be related to mucus

- A productive cough, or a wet cough, A non-productive cough, or a dry cough
- **Antitussive Agents are used for the treatment**

If non-productive cough which increases discomfort to e patients. centrally Acting Antitussives supress the cough center that mediates the cough reflex)

Codeine

Dihydrocodeine (opioids)

Dextrometorphan (non opioids(

Prenoxidiazine (pulmonary receptor desensetizers

4. Expectorants

These drugs increase the volume or/and decrease the viscosity of the respiratory secretions and facilitate their removal by ciliary action and coughing

A-Mucokinetic Expectorants stimulate the flow of respiratory tract secretions by stimulating the bronchial secretory cells) to increase the volume) and the ciliary movement) to facilitate their removal.

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Essential oils) **oil anise** ،oil eucalyptus

Ammonium chloride, Sodium citrate

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Guaiacol and Guaifenasin (obtained from creosote wood.

B-Mucolytic Expectorants

decrease the viscosity of mucus by splitting the disulfide (–S–S–) bonds of mucoproteins.

Ambroxol
Acetyl cysteine
Bromhexine

Cold Medicine

Cold/Flu Symptom	Ingredient to Look For	Drug Type
Body aches	Acetaminophen, aspirin, ibuprofen, naproxen	Analgesic
Cough (dry)	Dextromethorphan	Antitussive
Cough (wet or productive)	Guaifenesin	Expectorant
Fever	Acetaminophen, aspirin, ibuprofen, naproxen	Analgesic
Headache	Acetaminophen, aspirin, ibuprofen, naproxen	Analgesic
Runny nose, sneezing, congestion	chlorpheniramine, desloratadine, diphenhydramine	Antihistamine
Congestion	Oxymetazoline, phenylephrine, pseudoephedrine	Decong

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