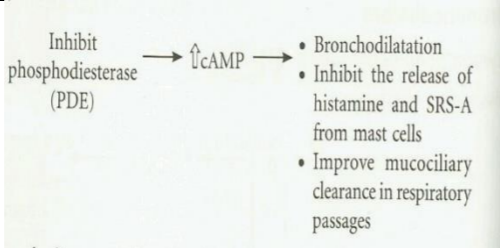

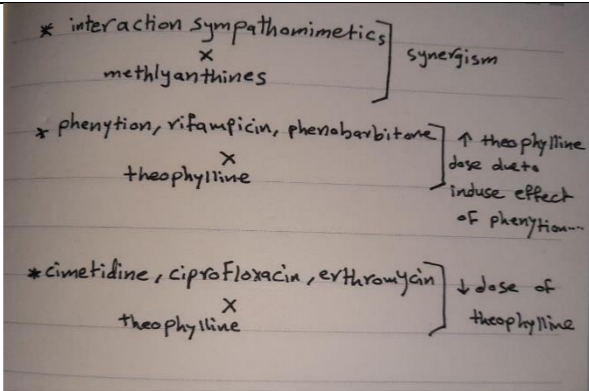


	Sympathomimetic (bronchodilator)	Methylxanthine (bronchodilator)	Anticholinergics	Leukotrienes antagonists	Mast cell stabilizers	Glucocorticoids	Anti-IgE
EX	*Non selective : <b>adrenaline</b>  *Selective B2 : <b>salbutamol, terbutaline</b> (short acting), <b>salmeterol, formoterol</b> (long acting).	<b>Theophylline, aminophylline, etophylline</b>	<b>Ipratropium bromide, Tiotropium Bromide</b>	<b>zafirlukast, montelukast</b>	<b>Sodium chromoglycate, nedochromil sodium, ketotifen</b>	*Inhaled : <b>beclomethasone, budesonide</b>  *Systemic : <b>hydrocortisone, prednesolone</b>	<b>Omalizumab</b>
Mechanical action	*act on stimulating B2-R in Bronchial smooth muscle and mast cell  *bronchodilation *inhibit release of histamin, SRS-A (LTC4 – LTD4) from mast cell *promote mucociliary clearance		Selectively blocks the effects of Ach in bronchial smooth muscle and cause bronchodilation	Blocks the effects of cysteinyl leukotrienes (LTC4-LTD4 – LTE4)  *bronchodilation *Suppress bronchial inflammation *Decrease hyper-reactivity	Inhibits release of histamin, LTS, PG and PAF  *mast cell membran stabilizer *not bronchodilator *allergic mediators are not released	Secrete lipocortin which inhibits phospholipaseA, PGS, TXA2  *antiallergic *antiinflammatory *immunosuppressant	Prevent binding of IgE to mast cell thus prevent mast cell de-granulation
PK	* <b>Adrenaline</b> :SC * <b>Selective B2</b> :inhalation * <b>Salbutamol, terbutaline</b> : Oral, IM, IV	*narrow therapeutic index *Food delays the rate of absorption of <b>theophylline</b> (poorly water soluble) *cross placenta and BBB *metabolised in liver * excreted in urine * <b>aminophylline</b> (water soluble):orally, slow IV * <b>etophylline</b> :oral, IM, IV	* slow onset of action * inhalation	* oral administration * highly bound to plasma protein	Inhalation *not effective orally as it poorly Absorbed from gut * <b>ketotifen</b> :orally effective but has slow onset of action	* 2type : 1. inhalation type 2. Systemic type	Parenterally 

Adverse effects	*serious cardiac side effects *high dose: (tremor, tachycardia, palpitation, hypokalaemia)	*narrow margin of safety *tachycardia *palpitation *hypotension *death due to cardiac arrhythmias.		Less side effects	*gastric irritation *Na+ and water Retention *hypertension *muscle weakness *osteoporosis * HPA-axis suppression		
Age				Patient above 12 year			Above 12 year
Use	<b>Bronchodilators</b>  *Salbutamol,terbutaline: Acute attake of asthma preferred *salmeterol: not suitable for acute attake *formetrol: prophylaxis due to long duration of action *B2 selective: 1st line *Adrenaline: acute attake of asthma	<b>Bronchodilation</b>  *bronchial asthma *COPD *premature apnoea in infants	Preferred in COPD	<b>Bronchodilation</b>	<b>Not bronchodilation</b>  *sodium chromoglycate: prophylactic agent to prevent bronchospasm +allergic conjunctivitis, allergic rhinitis, allergic dermatitis +topical route as prophylactic agent	*Suppress inflammatory response *Decrease mucosal oedema *Reduced bronchial hyperreactivity. *Do not have direct bronchodilating *well tolerated	In moderete to severe asthma and allergic
Interaction and Combination		 <p>* interaction Sympathomimetics x methylnanthines } synergism</p> <p>x phenytoin, rifampicin, phenobarbitone } ↑ theophylline dose due to induce effect of phenytoin...</p> <p>* cimetidine, ciprofloxacin, erythromycin } ↓ dose of theophylline</p>	Combination with B2 adrenergic agonist have better effects			*Combination of long acting b-agonists (LABA) with steroid is available, Eg: <b>fluticasone, Salmeterol, budesonide, formetrol.</b>  *have synergistic action	

**^^drugs avoided in asthma :**

\*NSAIDs

\* $\beta$ -adrenergic blockers.

\*Cholinergic agents.

**^^Treatment of acute severe asthma:**

\*Humidified oxygen

\*Nebulized  $\beta$ 2- adrenergic agonist+ anticholinergic agents

\*Systemic glucocorticoids: i.v. hydrocortisone

\*I.V. fluid

\*K+ and sodium bicarbonates supplements.

\*Antibiotics.



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