

Comparative Study of Beclomethasone Dipropionate with Salbutamol and Theophylline in Asthmatic Conditions.

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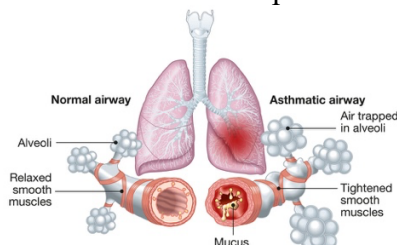
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ABSTRACT

Asthma is associated with inflammation and suffocation of airway wall so patient feel difficulty in breathing and may start tachypnea. Bronchial asthma is a condition in which narrowing of airway due to mucosal edema so patient feel dyspnea and sometime wheezing may occur.



Mast cells present in wall of alveoli have histamine, LT, and PAF mainly in it. While chemoreceptor present in blood that are O₂ and CO₂ sensitive means if decrease oxygen concentration in blood it send message to brain and increase breathing and tachypnea occur.

Initially we try protect rupture of mast cells present in alveoli to avoid drainage of histamine, LT, and PAF. In acute condition inhalation method is more effective than oral syrup and oral tablets.

Keywords: PAF, LT

Introduction

2.2 Classification of Asthma

These types include:

- Mild intermittent asthma
- Mild persistent asthma
- Moderate persistent asthma
- Severe persistent asthma

Mild intermittent asthma

Symptoms up to two days per week or two nights per month

Symptoms

- wheezing or whistling when breathing
- coughing
- swollen airways

- development of mucus in the airways

Mild persistent asthma

Symptoms are still mild but occur more than twice per week.

Symptoms

- wheezing or whistling when breathing
- coughing
- swollen airways
- development of mucus in the airways
- chest tightness or pain

Moderate persistent asthma

Symptoms once each day, or most days. Symptoms at least one night each week.

Symptoms

- wheezing or whistling when breathing
- coughing
- swollen airways
- development of mucus in the airways
- chest tightness or pain

Severe persistent asthma

Symptoms several times during the day. These symptoms will occur almost every day. You will also have symptoms many nights each week. Severe persistent asthma doesn't respond well to medications even when taken regularly.

Symptoms

- wheezing or whistling sound when breathing
- coughing
- swollen airways

- development of mucus in the airways
- chest tightness or pain

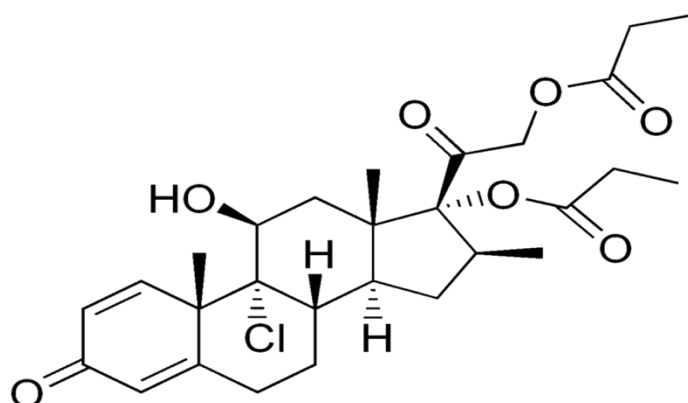
Factors that increase your risk of developing any type of asthma include:

- having a family history of asthma
- smoking or exposure to secondhand smoke
- having allergies
- being overweight
- exposure to pollution or fumes
- exposure to occupational chemicals

DRUG PROFILE**STEROIDS**

These are not analgesic not anti pyretic

Examples: Beclomethasone dipropionate, Budesonide, Fluticasone propionate, Flunisolide, Triamcinolone.



beclomethasone dipropionate

Mechanism of action: Steroids act by inhibiting phospholipase A2 so decrease arachidonic acid synthesis and decrease PGs and LTs synthesis.

Activity:

- Anti allergy
- Anti inflammatory
 - Immunosuppressant on high dose used as anti-cancer

Oral steroids have many side effects mainly as follows

- Cause ulcers so take antacid after meal
- Decrease calcium level so osteoporosis may occur
- Increase calcium excretion in urine
- Delay wound healing
- Cushing syndrome may occur
- Cataract in eye

so as possible as don't take steroids orally to avoid side effects can take by inhalation.

By inhalation corticosteroids deposit in vocal cord and hoarseness of voice and may be chance of vocal cord candidiasis infection.

So gargle after every inhalation of corticosteroids to avoid side effects.

I. Identify Ag that cause allergy to patient like dust ,smoke etc. and avoid it

II. Anti-IgE Antibody

Example: Omalizumab

III. Mast cell stabilizer

Mechanism of action: mast cell stabilizers open chloride channel so mast cells get relax and inhibit mast cells activation.

A. Chromane derivatives

B. Examples: Sodium cromoglycate, Nedocromil

Administration: Chromane derivatives administered by inhalation as microfine powder

Side effects: Throat irritation, Bronchial spasm

C. Non chromane derivatives

Examples: Ketotifen

Administration: Administered by orally

Side effects: Sedation and dry mouth

IV. Anti histaminics

Mechanism of action: Inhibit action of histamine. Don't inhibit release of histamine.

Examples: azelastine, cetirizine, desloratadine, and fexofenadine

Side effects: Antihistamines are contraindicated in asthma because they dry the secretions in the upper and lower respiratory tracts.

V. Leukotriene Antagonist

Example: Zileuton

Mechanism of action: Lipo-oxygenase (LOP) Inhibitor (decrease Leukotriene synthesis)

Side effects: Hepatotoxicity

Example: Montelukast, Zafirlucast

Mechanism of action: LT D4 receptor antagonist

Side effects: Ear inflammation, Throat irritation, Running nose, vivid dreams

VI. PAF Antagonist

Example: Gingolide -B

VII. Bronchodilators

A. β_2 Agonist (Sympathomimetics)

i) Short acting

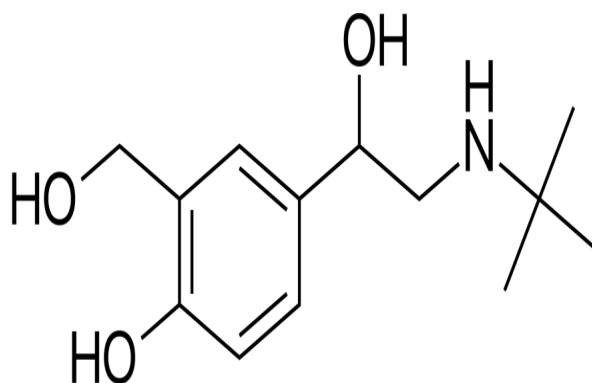
Non-selective:

Examples: Adrenaline, Isoprenaline, Ephedrine

Selective:

Examples: Salbutamol (albuterol)

Terbutaline



Salbutamol (INN) or albuterol (USAN).

ii) Long acting**Examples:** Salmeterol-slow onset long acting

Formoterol-Fast onset long acting

Bambutenol

(bicarbonate ester of terbutalin)

Mechanism of action: β_2 Agonist drugs activate β_2 receptor present on alveoli wall then activate AC enzyme So increase cAMP formation and then bronchodilation**Side effects:**

- Muscle tremor
- Palpitation
- Nervousness
- Increase blood sugar
- Reflux tachycardia

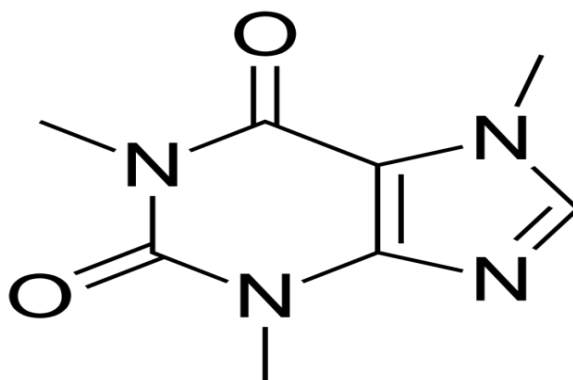
B. Directly acting Methylxanthines**Examples:-**Caffeine

-Theophylline

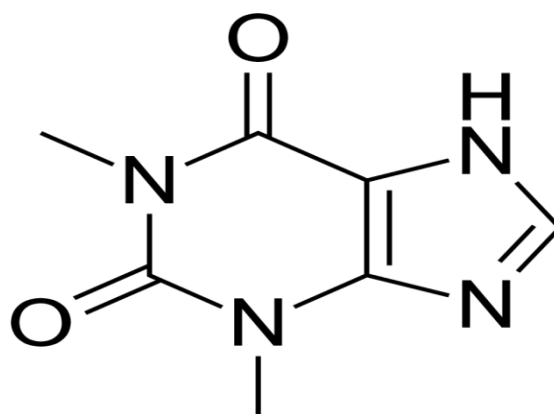
-Theobromine

Mechanism of action: Methylxanthine derivatives inhibit Phosphodiesterase which inactivate cAMP means ultimately cAMP not inactivated and cAMP degradation decreases so bronchodilation occurs.**Side effects:** Tachycardia, Nausea, vomiting.**Acts:**

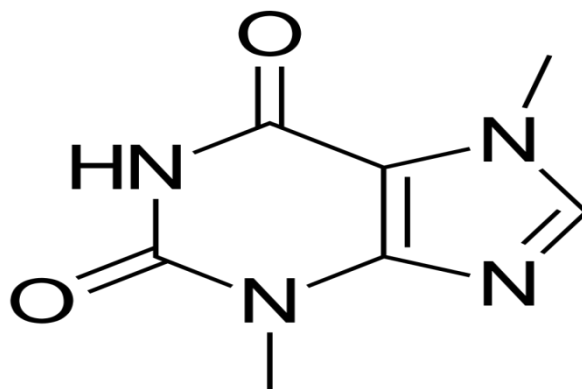
- Bronchodilation so used in new born to cure apnoea
- Stimulate CNS
- Tachycardia
- Enhance Gastric Hcl
- Diuretic action



- Caffeine (1,3,7 trimethylxanthine)



- Theophylline (1,3 dimethylxanthine)



- Theobromine (3,7 dimethylxanthine)

D. Anti - Cholinergics

Examples:- - Ipratropium bromide
- Tiotropium bromide

Mechanism of action: These drugs inhibit cholinergic constrictors and as well inhibit acetyl choline.

Side effects: Constipation, dry mouth, Stomach upset

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