

Treatment of Cough

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Treatment of Cough

- ❖ Cough is a symptom
- ❖ Underlying disorders:
 - Asthma
 - Bronchitis
 - Chronic sinusitis (post-nasal drip)
 - PTB
 - Drugs like ACE inhibitors

Types of cough

- ❖ Useful (productive cough):
 - Encouraged

- ❖ Useless (unproductive) cough:
 - Suppressed

Treatment of cough

- ❖ Identify the cause:
 - Asthma, sinusitis, drug avoidance
- ❖ Treat the cause
- ❖ Treat cough accordingly

Sites of action of drugs

❖ Peripheral sites:

- Afferent side of the cough reflex (sensory):
 - Requires warm moist atmosphere to soothe the area
- Efferent side of the cough reflex (motor):
 - Easing cough & make it more productive

❖ Central sites:

- Medulla & cerebral cortex
 - Opioids, sedatives, antihistamines

I. Cough Suppression

- Antitussives (cough suppressants):
 - Suppress dry irritative cough
 - Indicated:
 - No identifiable treatable cause for the cough
 - To suppress a dry irritative cough that may cause sleep disturbance

Peripheral Antitussives

- Cough arising above the larynx:
 - Demulcent preparations:
 - Contain soothing substances that sooth & coat the pharynx

 - Simple linctus:
 - Citric acid in sugar-based solution with anise flavour
 - Lozenges

Peripheral Antitussives

❖ Linctus:

- Oral demulcent sugar-based syrup used alone or as a vehicle for other antitussive agents

❖ Lozenges:

- Demulcents to sooth & coat the pharynx
 - Strepsil lozenges
 - Vicks lozenges

Peripheral Antitussives

- ❑ Cough arising below the larynx:
 - ❖ Water aerosol inhalation
 - ❖ Warm environment
 - ❖ Compound benzoin tincture
 - ❖ Menthol or eucalyptus aromatic inhalations
 - ❖ Local anaesthetics (Xylocaine); in very severe cases

Central Antitussives

- ❖ Block medullary cough centre:
 - Opioids:
 - Codeine, methadone, morphine
 - Methadone, morphine in severe cases; malignancy
 - Dextromethorphan (in OTC preparations)
 - Pholcodine (in OTC preparations)

- ❖ OTC: (over-the counter preparations)

Opioid Antitussives: Codeine

- ❖ Natural low efficacy opioid:
 - Cough suppressant
 - Analgesic
 - Anti-diarrhoeal
- ❖ Converted into morphine by the liver
- ❖ Adverse effects:
 - Nausea, constipation
 - Respiratory depression
 - Dependence

Opioid Antitussives: Methadone; Morphine

❖ Methadone:

- Synthetic similar to morphine
- Long duration of action
- Severe cough in advanced lung cancer

❖ Morphine

- Antitussive in advanced lung cancer

Opioid Antitussives: Dextromethorphan & Pholcodine

□ Dextromethorphan & Pholcodine:

- Have antitussive effect
- No analgesic effect
- No respiratory depressant effect
- Nonaddicting
- Used in OTC drug preparations

Opioid Antitussives

- ❑ CI in asthma & in COAD:
- ❑ They produce:
 - Bronchospasm
 - Respiratory depression
 - Thick sputum

- ❑ Opioids also to be avoided in children

Cough in Children

- ❖ Opioid Antitussives are avoided
- ❖ A sedating antihistamine may be used:
 - Diphenhydramine
 - Triprolidine

2. Mucolytics & Expectorants

- Respiratory mucous:
 - Consists mainly of water with
 - Glycoproteins cross-linked by disulphide bonds
 - Increases in respiratory disease
 - Becomes more viscous or thick
 - Difficult to expectorate

Mucolytics; Carbocysteine

- ❑ Mucolytics Liquefy mucus
- ❑ **Carbocysteine:**
 - Mucolytic
 - Has free sulphhydryl groups
 - Opens disulphide bonds in mucus
 - Reduces mucous viscosity
 - Orally or by inhalation
 - May cause GI irritation & allergic reaction

Expectorants

- ❖ Increase expulsion & volume of bronchial secretions
- ❖ Encourage productive cough:
 - Water inhalation
 - Rehydration are good expectorants
- ❖ Examples of expectorants:
 - Guaifenesin
 - Ipecacuanha
 - Volatile oils

Guaifenesin

- ❖ Safe & effective expectorant
- ❖ Used with antihistamines & decongestants in cough preparations

OTC Cough preparation

- ❖ Honey, lemon
- ❖ Volatile oils (e.g. menthol, anise)
- ❖ In OTC cough preparations

Examples of OTC Cough Preparations

- ❖ Actifed expectorant
- ❖ Actifed linctus
- ❖ Benylin cough preparations
- ❖ Venos expectorant (guaifenesin)

General guidelines

- ❖ Identify type of cough & underlying cause
- ❖ Treat the cause
- ❖ Quit smoking
- ❖ For suppression of useless cough
 - Codeine, pholcodine, dextromethorphan or methadone linctuses

General Guidelines

- ❖ To liquefy sputum:
 - Water aerosol with or without:
 - Menthol, benzoin or eucalyptus inhalations
 - Drink warm water
 - Carbocysteine is useful

Always remember

- ❖ In children, a sedative antihistamine used
- ❖ Cough suppressants:
 - Sputum retention
- ❖ Opioids are CI asthma & COAD
- ❖ Pulmonary TB & malignancies are causes of cough

Always remember

- ❖ Opioid antitussives are usually formulated as linctuses (oral solutions)
- ❖ Water is probably the best expectorant
- ❖ Oxygen therapy & antimuscarinics may sputum more thick & dry