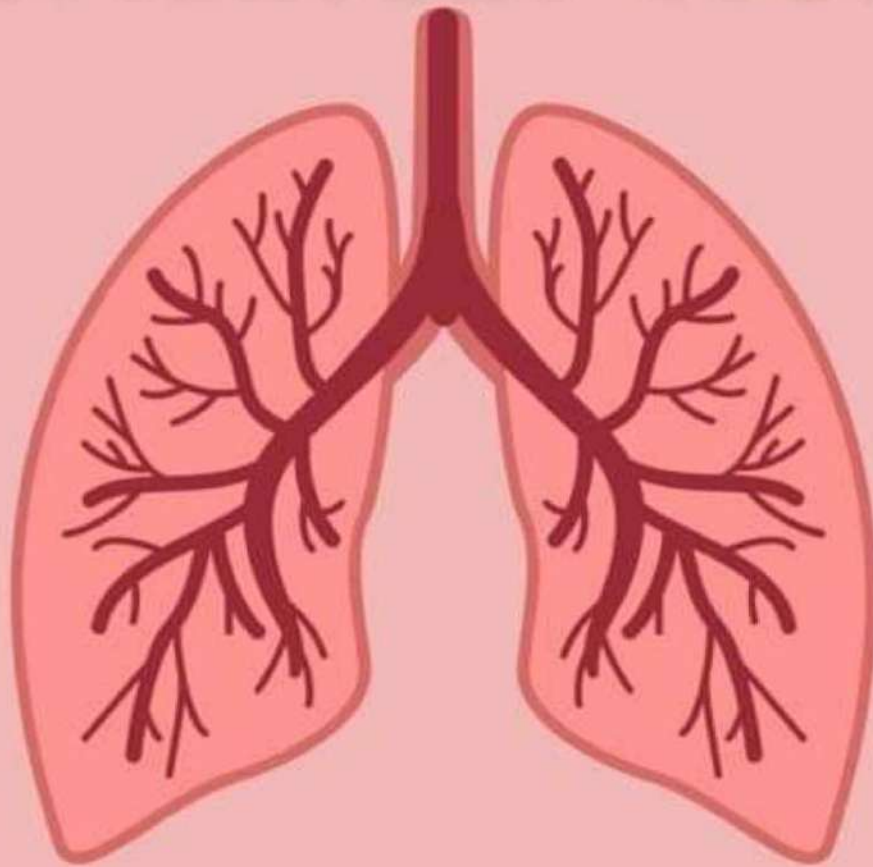




RESPIRATORY SYSTEM



SUBJECT : Pharmacology

LECTURE : 4 - part 2

DONE BY : Johainah Taha

Lecture 4: Treatment of allergic rhinitis (AR) and cough

Respiratory system
Second year
Medical school
Hashemite University
2nd semester 22/23
Sofian Al Shboul, MD, PhD.

المهم بهاد الموضوع هو اسماء الادوية و كيف نتعامل معها

*Coughing is an important defense mechanism of the respiratory system in response to irritants and is a common reason for patients to seek medical care.

*A ^{مزعجة} troublesome cough may represent several etiologies, such as the common cold, sinusitis, or an underlying chronic respiratory disease.

*In some cases, cough may be an effective defense reflex against an underlying bacterial infection and **should not be suppressed.**

← طبعا ما بعين اوقفها براي الحالات

Before treating cough, **identification of its cause** is important to ensure that antitussive treatment is appropriate. The priority should always be to treat the underlying cause of cough when possible.



Cough is a major Involuntary protective reflex

Overview

❖ A sudden ^{طرد}expulsion of air through the large breathing passages that can help clear them of fluids, irritants, foreign particles and microbes. ^{مهيان}

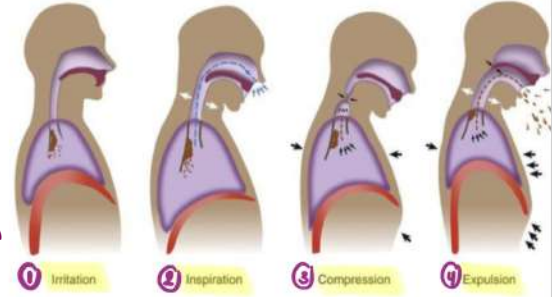
❖ Not to be suppress- Indiscriminately

لا يتم قمعها بشكل عشوائي

❖ Many situations do not serve any purpose

❖ Disturb patient ,its rest and sleep

قد تزعج المرضى اثناء النوم او الراحة لهيك انا بعالجها



ال cough عبارة عن normal process و انا ما بعالجها الا لما تزعل المريض، مثلا المريض ما بيعرف ينام بسببها او يستفرغ

Cough

Productivity

Severity



Productive

Non - Productive

acute

Chronic



هي الي بعالجها
وبعلاجها

Types and common causes of cough

- **Non-productive (dry):** No useful purpose, increases discomfort to the patient >> needs suppression
 بتعالف معرا بشكل اساسف
- **Productive (tenacious):** Presence of excessive sputum >> suppression not desired >> needs coughing/clearing out of the sputum

Clinical cough descriptor	Definition
Acute	Cough that lasts for < 3 weeks
Subacute	Cough that lasts 3 – 8 weeks
Chronic	Cough that lasts > 8 weeks
Refractory	Cough that does not respond to usual medical treatment such as the ADP
Chronic idiopathic	Cough with no underlying cause even after a thorough systematic review
Specific	A known underlying disease causing the cough

ADP: Anatomical diagnostic protocol.



Complications of coughing

Acute:

1. cough syncope (fainting spells due to decreased blood flow to the brain when coughs are prolonged and forceful),
 نوبات اعفاه اعفاه
2. Insomnia ارق
3. Cough-induced vomiting,
4. Subconjunctival hemorrhage or "red eye"

Chronic:

1. Abdominal or pelvic hernias
 توضفح
2. Fatigue fractures of lower ribs and costochondritis.
3. Chronic or violent coughing can contribute to damage to the pelvic floor and a possible cystocele.

A perineal hernia occurs when weak pelvic floor muscles allow part of an organ or tissue to push into your abdominal cavity.

Acute cough -> when it lasts fewer than three weeks.

Chronic cough -> when it lasts more than eight weeks.

دواء

Treatment

AGENTS FOR COUGH	
1 Benzonate TESSALON PERLES	Cough suppressant
2 Codeine (with guaifenesin) VARIOUS	Cough suppressant/expectorant
3 Dextromethorphan VARIOUS	Cough suppressant
4 Dextromethorphan (with guaifenesin) VARIOUS	Cough suppressant/expectorant
5 Guaifenesin VARIOUS	Expectorant

2 + 4 → Combination

• Before treating cough, identification of its cause is important to ensure that antitussive treatment is appropriate.

علاج الكحة
بشكله

• Priority should always be to treat the underlying cause of cough when possible.

There are 2 types of OTC cough medicines

Anti-tussive (Cough suppressant)



- * inhibit Cough
- * ↓ Reflex of cough
- * used to treat dry Cough with little mucus present.
- * Side effect:-
 1. Dizziness
 2. Fatigue
 3. nausea
 4. Constipation

Expectorants



- * easy to cough mucus
- * ↑ amount of water present in mucus
- * used to treat wet Cough with Lots mucus present.
- * Side effect:-
 1. Dizziness
 2. Fatigue
 3. nausea
 4. Vomiting

مهمة

Table comparing
**Cough Suppressant
&
Expectorant**

Characteristics	Cough Suppressant	Expectorant
Definition	A medication that inhibits or suppresses a cough	A medication that makes it easier to cough up mucus
Ingredients	Dextromethorphan is the suppressant but often the medicine also has codeine and diphenhydramine	Guaifenesin is the expectorant but sometimes bromhexine and salbutamol are also added
Activity	Greatly reduces the reflex to cough	Increases the amount of water present in mucus so it can be coughed up
Uses	Used to treat coughs that are dry, with little mucus present	Used to treat coughs that are wet, with lots of mucus present
Side effects	Dizziness, fatigue, nausea, and constipation	Dizziness, fatigue, nausea, and vomiting

Antitussives:

Used when cough performs no useful function (i.e. is nonproductive), and its complications represent a real or potential hazard (i.e. distressing, painful, increasing airway damage or causing morbidity)

Expectorants:

Used to get rid of excessive thick bronchial secretions

fian Al Shboul ©

المهم نعرف انه في فرق بين النوعين، و مرات بعطيهم ب combination .

Antitussives

❖ Centrally acting:

1- Opioid mechanism: Codeine → حثي عنه

2- Non opioid mechanism: dextromethorphan → حثي عنه

❖ Peripherally acting

1- Pharyngeal demulcent: Lozenges or Glycerine.

2- Steam inhalation

*Central antitussive drugs act within the CNS at the level of the brain stem, where the basic neural circuitry responsible for cough is located

*Peripheral antitussive drugs act outside the central nervous system (CNS) to inhibit cough by suppressing the responsiveness of one or more vagal sensory receptors that produce cough

Codeine +anopioid

اعدزويي اعدت
ترتيبے ار 3 صفات

- ① ✓ Decreases the sensitivity of cough centers in CNS to peripheral stimuli and decreases mucosal secretion.
- ② ✓ Doses to get these effects are lower than those required for analgesia.
- ✓ Adverse effects: constipation, dysphoria, and fatigue.
- ✓ Codeine has addictive potential → ادمان

Codeine is an opiate and prodrug of morphine mainly used to treat pain, coughing, and diarrhea.

ما يستعمله بسبب مشكلة الادمان و ال side effects

The addictive potential effect of Codein limits its use, given increasing concerns with opioid addiction in the United States

Dextromethorphan

Synthetic derivative of morphine with NO analgesic effects in antitussive doses.

- ❖ Better adverse effect profile than does codeine and is equally effective for cough suppression.
- ❖ In low doses = low addictive profile. ← اضطراب الهوية، شعور الفتيق الجنسية
- ❖ It is also a potential drug of abuse, since it may cause dysphoria at high doses.
- ❖ Can trigger a histamine release (allergic reaction) >> children susceptible to allergic reactions should be administered dextromethorphan only if absolutely necessary
- ❖ AE: Nausea, vomiting

استعمالهم مفضل اكثر من codaine
بيعملوا ادمان بس اخف

Guaifenesin

- an **expectorant**, is available as a **single-ingredient formulation** and is commonly found in **combination cough products** with codeine or dextromethorphan.
- ↑ Bronchial secretion, ↓ Viscosity
- Side effects: dizziness, sleepiness, skin rash, and nausea.

*Guaifenesin is currently the only expectorant approved

*Expectorant: a medicine which promotes the secretion of sputum by the air passages, used to treat coughs.

AGENTS FOR COUGH	
<i>Benzonatate</i> TESSALON PERLES	Cough suppressant
<i>Codeine (with guaifenesin)</i> VARIOUS	Cough suppressant/expectorant
<i>Dextromethorphan</i> VARIOUS	Cough suppressant
<i>Dextromethorphan (with guaifenesin)</i> VARIOUS	Cough suppressant/expectorant
<i>Guaifenesin</i> VARIOUS	Expectorant

على قصة ال combination هاد الجدول بوضح مع مين بعطه

و الجدول مهم 📌

هدول اضافيين موجودين بالكتاب treatments

Benzonatate:

*Unlike the opioids, benzonatate suppresses the cough reflex through peripheral action.

وتخدير

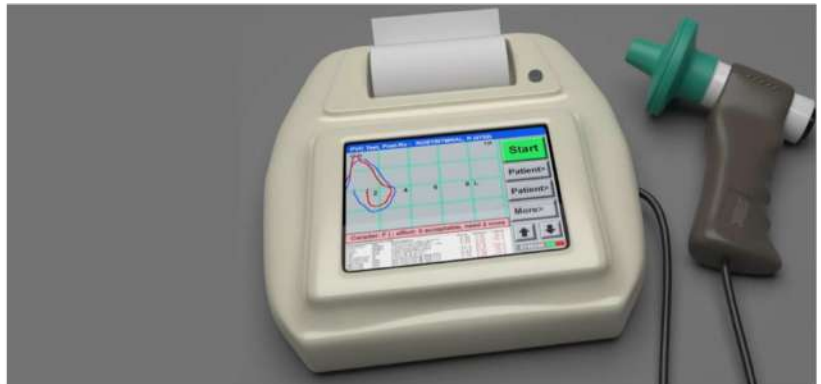
*It anesthetizes the stretch receptors located in the respiratory passages, lungs, and pleura.

*Adverse effects include dizziness, numbness of the tongue, mouth, and throat.

*These localized effects may be particularly problematic if the capsules are broken or chewed and the drug comes in direct contact with the oral mucosa.



هدول فيديوهات عرضهم
الدكتور خلال المحاضرة



Quiz Time

1- A 32-year-old man with a history of opioid addiction presents with cough due to a viral upper respiratory system infection. Which is appropriate symptomatic treatment for cough in this patient?

- A. Guaifenesin/dextromethorphan
- B. Guaifenesin/codeine
- C. Benzonatate
- D. Montelukast

Answer : C

2- A 26-year-old man with a chronic cough takes codeine for cough suppression. He presents to his primary care physician for follow-up. The patient admits to taking this medication three times daily even when he does not have symptoms. The treating physician must be concerned about which of the following effects?

- (A) Addiction
- (B) Diarrhea
- (C) Euphoria
- (D) Excessive anxiety
- (E) Sweating

Answer: A

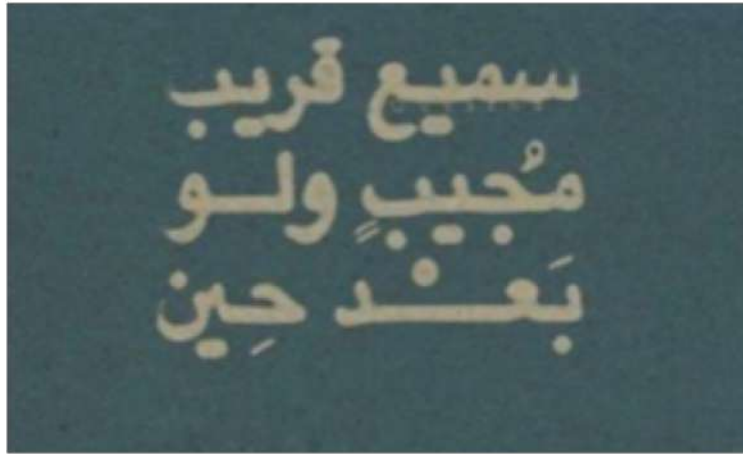
3- A 6-year-old boy returns home from his last day of school before thanksgiving break. Over the break, he develops a cough, stuffy nose, headache, and fever. His mother administers a cough syrup containing guaifenesin. Which of the following effects is likely caused by guaifenesin?

- (A) Cough becomes more productive
- (B) Cough stops altogether
- (C) Fever diminishes
- (D) Headache resolves
- (E) Headache worsens

Answer: A

4- A 26-year-old man presents to an urgent care clinic with a dry cough for the past week. The cough was associated with a fever and chills for 2 days, but he has since been afebrile. He has no other symptoms. What opioid is most appropriate to treat this patients' cough?

- (A) Butorphanol
- (B) Dextromethorphan
- (C) Diphenoxylate
- (D) Guaifenesin
- (E) Loperamide



موفقين 🤝 ما تنسوننا من صالح دعواتكم في هاد الشهر الفضيل

#النادي_الطبي
#معكم_خطوة_بخطوة