Treatment of cough

- The cough is a protective reflex.
- It indicates underlying illness , happen due to :
- Mechanical stimulation of large respiratory passage.
- Chemical stimulation of alveoli: activation of receptors in the alveoli —> signal transfers through Afferent nerve (limb) to cough center in the brain—> through Efferent nerve to muscles of the chest to contract.
- Drug treatment is divided into two main categories :

1. **Antitissuve drugs** : therapy that controls,inhibits,or eliminates cough.useful to suppress intensity and frequency of coughing when it is unproductive and distressing.
   يعني هاي الأدوية بتساعد على التخلص من الافرازات الموجودة مسبقًا ، تلطيف السعال بدون زيادة الافرازات.
2. **Protussive drug** : therapy that makes cough more effective.
   مقشعات ؛ بتزيد السعال عشان يطلع افرازات اكثر بنحتاجهم في حالات ال infections

- specific treatment of cough: direct on the etiology like bronchial asthma,GERD,sarcoidosis…..
- Nonspecific treatment: direct at the symptom when the cause is unknown,or definitive therapy did not have the chance to work (cancer metastatic to lung) , here we can not cure the cause which is cancer so we try to ease the cough.
- We start with first category, **Antitussive drug ;**
- <u>Drug that may alter the mucociliary factors:</u>

- Increase the volume of secretion.(not bcz increase production but we ease the condition)
- Decrease the production of mucus.
- Change the consistency of mucus.
- Increase mucociliary clearance.

- Ipecacuanha and squill: natural product have direct effect on CNS.
- Volatile (lemon, anise ,pine): have direct action on bronchi
- Iodinated glycerol: can cause congenital hypothyroidism so **CONTRAINDICATED** in pregnancy and during lactation.
- Aromatic chest rub
- Bromhexine: hydrolysis of mucopolysaccharides (make mucus more soluble)
- Carbocisteine: reduce disulfide bond in mucuprotein , may irritate airway in sensitive patient .
- Combination of H1-histamine antagonist and a decongestant is a good combination if the cause of coughing is allergy .
- Hydration
- <u>Drug acting on the Afferent limb (prevent the signal to reach cough center) :</u>

- Local anaesthetic : lidocaine,topically,transient effect,intravenously.
- Opioid.(very effective)

- <u>Drug acting on cough center (cross BBB and cause addiction) :</u>

- Narcotic :
- codeine
- Diamorphine
- Morphine
- Non narcotic(not associated with addiction):
- Dextromethorphan
- Glaucine
- Diphenhydramine
- Pholcodine

- Drug acting on the Efferent limb :
- Ipratropium : aerosol,effective for asthma, chronic bronchitis , persistent cough after URTI.
- Drug acting on the respiratory skeletal muscles (block contraction of chest muscles) :
- Nondepolarizing blockers like : pancuronium , may be considered in patients who can not mechanically ventilated because uncontrollable spasm of coughing .
- Now the second category is **Protussive drug** (increase cough effectiveness):
- Indicated when cough perform useful function like bronchiectasis,cystic fibrosis,pneumonia,postoperative atelectasis.
- Hypertonic saline aerosol: improve cough clearance
- Amiloride aerosol: for cystic fibrosis
- Bronchodilators (beta agonist) : with too much relaxation , flow rates my decrease ; over dilation may help increase accumulation of mucus.
- Check the mechanical measures,slide17
- **New treatments** :
- New opioids such as endomorphins bind to ORI1 , it is under testing
- The currently one bind the OP3 receptor causes side effects.
- Some certain drugs have the ability to inhibit the underlying inflammatory process that under certain condition cause cough :
- Anti-inflammatory
- Drug for the treatment of asthma or COPD
- PPI for GERD

بالتوفيق جميعًا

آيةُ الله عوّار