

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

- *Where we can find the COPD?*

In Airway disease (conducting system disease)

- *What is the component of respiratory system?*

1- Conducting system: nose, larynx, trachea , bronchi terminal bronchioles .

2- Gas exchange system .

- *What are the organs or systems should be involved to have normal breathing?*

1- Normal lungs·

2- Normal conducting system·

3- Normal pump system:

- Respiratory muscles (diaphragm , intercostals and abdominal muscles) and thoracic cage (ribs)·

- The function is to pump air from atmosphere through conducting system into the alveoli·

4- Normal control system:

- Respiratory center in the brain·

- It gives orders depending on some readings and information arrives to it from other organs in the body by one of these two stimuli \what drives Ventilation?:

1-hypoxia: in abnormal people (like COPD)·

2- Hypercapnia: in normal people and some abnormal people·

- **How do these stimuli reach the resp. center in the brain??**
 - A) Chemoreceptors
 - B) Reticular formation system (RFS).

- **What is the difference between them??**
 - CHEMORECEPTOR works during all the day 24/24 but RFS stops working during sleep.
 - For that reason we can't breathe during sleep when the chemoreceptor is damaged (hypercapnic respiratory failure due to hypoventilation)
- **What the most common Cause leading to damage of respiratory center?**

Drugs (Narcotics)

Note: If your normal pO_2 is 80 and for any reason it reaches to 70 or 65 we don't expect big damage so it's hypoxia but if it reaches lower than 60 it's respiratory failure.
- **Respiratory failure: two types :**
 - 1- Sever hypoxia with normal or even low CO_2 (hypoxemic or type 1 respiratory failure)
 - 2- Sever hypoxia with hypercapnia (hypercapnic or type 2 respiratory failure).

- **What are the airway diseases?**
 - 1- Bronchial asthma (Most common).
 - 2- COPD.

- **What are the differences between COPD and bronchial asthma?**
- **All are airway obstructive , chronic diseases with limitation of air flow but**

Bronchial asthma: is reversible , comes as acute attacks , the type of inflammatory cells is different and more important than COPD, there is

airway hyper responsiveness and wheezing while COPD is an Irreversible condition.

- ***Few notes about airway hyper responsiveness:***

1- We find this phenomenon in asthma patient.

2- Also we can say bronchial hyper responsiveness.

3- The test: challenge test.

4- we use Methacholine for diagnosis in the challenge test

-in the past they used to use histamine but now replaced by methacholine .

- ***What the difference between the nose and mouth breathing?***

Nose can warm and moistening air but the mouth keeps air dry and cold and this dry cold air irritates the airways .

During exercise we do mouth breathing that's why we get hyper responsiveness of the airways and we get bronchio-spasm

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أبراهام لنكولن*