

# **RESPIRATORY EMERGENCIES**

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# ASTHMA

- Asthma is a chronic inflammatory disease of the airways with variable or reversible airway obstruction
- Characterized by increased sensitivity of the airway to a variety of stimuli
- Symptoms are a varying severity of dyspnea, wheezing, and or cough

# ASTHMA

## Epidemiology

- There are 14 – 17 million asthmatics in the US
- 1% seek care in ED annually
- **Hospitalizations;** 127,000 in '65
- 459,000 in '85
- 466,000 in '94
- **Deaths;** 4,000 in '87
- 5,106 in '91

# ASTHMA

- Autonomic Nervous System:  
Cholinergic – increased secretions and Bronchoconstriction.  
Adrenergic – Bronchodilation.

# Asthma

- Assessment. History
- Physical
- Testing

# Asthma

- **Current Episode** : Onset, Pattern, Symptoms. Dyspnea, Fever, Chest Tightness, Wheezing, Cough and Sputum production.
- **Past Episodes**: ICU admissions, # ED visits in past year, Intubations, Hx of Pneumothorax
- **Med. Hx**: CV disease, Medications
- **Social Hx**: Tobacco, primary or 2d hand. Drug Hx including inhalants.
- **Family Hx**: Asthma, other Pulmonary diseases, Hx of Atopy.

# Asthma

- **Physical:** Appearance, Anxiety, Mental status, Level of distress, Retractions, Accessory muscle use.
- **Vital Signs:** Temp., Heart Rate, Respiratory Rate, Pulse Oximetry, BP ( pulses paradoxus)
- **Pulmonary:** Hyperresonance, prolonged expiratory phase, Air Flow, Wheeze distribution.
- **Associated Findings:** ENT, Cardiac, Skin, Extremities, Upper Airway, Lymphadenopathy.

# Asthma

- Signs of Near Fatal Asthma Attack: Silent Chest on auscultation, Cyanosis, Bradycardia, Exhaustion, Decreased LOC.

# Asthma

- **Testing:** Pulmonary Function/ Peek Flow, (CXR, EKG, CBC, Lytes) – not routinely, ABG.

# COPD

- A Broad Spectrum of conditions characterized by irreversible limitation of airflow.
- Most Common: Chronic Bronchitis-excessive bronchial mucous production and airway inflammation. Emphysema-irreversible abnormal enlargement of the alveolar spaces. Both afflict more than 25% of adult population.
- Classic presentations: Pink puffers, Blue bloaters

# COPD

- **Assessment:** Hx- Dyspnea, Wheeze, Cough, Sputum, Hemoptysis, Chest Pain, Fever Mental Status, Comorbidity such as cardiac, Past medical hx( last admit, intubations, ICU), Medication, Home O2.

# COPD

- **Assessment:** Physical- VSS, O2 Sat, Upright position, accessory muscle use, Pursed lip breathing, Auscultation, Heart Exam.

# COPD

- **Assessment:** Testing- Peek Flow, O2 Sat, ABG ( acidosis, hypercarbia), CXR ( PTX, Pneumonia,CHF) EKG.
- Differential Dx of COPD  
Exacerbation:Pneumonia, PE, PTX, CHF, Bronchitis,Chemical or Allergic Tracheobronchitis, Lung Ca, Atelectasis,Ischemic heart disease.

# COPD

- **Management:** Monitor, O<sub>2</sub> , IV access and volume status.
- **Medications:** Inhalation Therapy-  
b adrenergic agonists. Steroids,  
Anticholinergics, Theophylline, BiPAP,  
Mechanical ventilation.

# Acute Respiratory Failure

- A large group of disorders that share the common problem of impaired gas exchange in the lungs.
- Defined by ABG measurement: Hypoxia  $pO_2 < 60$ , Hypercarbia  $pCO_2 > 49$ , Acidosis  $pH < 7.25$
- Type I hypoxic respiratory failure; low  $pO_2$ , nl or low  $pCO_2$ , causes ARDS, pneumonia.
- Type II ventilatory failure; low  $pO_2$ , high  $pCO_2$ , causes Abnormal lungs-COPD/Asthma. Normal lungs- Sedatives, neuromuscular disease.

# Upper Airway Obstruction

- Hyperacute(seconds to a few minutes)  
Laryngospasm, Foreign body

# Upper Airway Obstruction

- Acute(minutes to a few hours)  
Burns(thermal or chemical)  
Hematomas(2d to warfarin) Epiglottitis,  
Supraglottitis,Allergic,Angioneurotic  
edema, psychogenic

# Upper Airway Obstruction

- Subacute (hours to a few days) Infections of the oropharynx, high esophageal FBs, Stevens Johnson syndrome, Croup, tracheitis.

# Upper Airway Obstruction

- Chronic (days) Tumors, Polyps, Congenital malformations and dysfunctions, Postracheostomy stenosis, Chronic inflammatory diseases( sarcoid, Wegeners granulomatosis, erythema nodosum, Sjogrens syndrome.), Sleep Apnea syndrome, Tracheomalacia.