Dyspnea:

Assessment and Treatment

Objectives

- Establish patient assessment goals
- Develop telephone triage protocols
- Discuss common causes of acute dyspnea

Pathophysiology

- Sensation similar to thirst or hunger, involving sensory cortex during chest muscle contraction.
- Interaction of signals to and from autonomic nervous system, motor cortex, and peripheral receptors.

Initial Survey

- Primary goal to determine need for intubation/oxygenation.
- Determine urgency by assessing duration and severity of symptoms.
- Telephone triage

Initial Survey (cont.)

- Obtain history while examining patient
- Ask about: medications, cough, fever, chest pain, trauma, underlying cardiac or pulmonary disease

Initial Survey (cont.)

- Assess: airway patency, mental status, ability to speak, breathing effort, breath sounds, skin color, vital signs, pulse ox.
- Keep differential diagnosis in mind during assessment.

Unstable Signs

- Hypotension
- Hypoxia
- Arrythmias
- Altered mental status
- Stridor
- Breathing effort without air movement
- Tracheal deviation, hypotension, and unilateral breath sounds (suspect tension pneumothorax)

In unstable patients:

- Start IV and O2
- Consider intubation
- Needle thoracentesis in tension pneumothorax
- Bronchodilators if obstructive lung dz.
- IV furosemide if pulmonary edema
- Transport to hospital unless stabilized quickly

Secondary History

- Emphasize cardiac and pulmonary symptoms (may coexist).
- Rest vs. exertional dyspnea
- Smoke exposure
- Medications

Secondary History (cont.)

- Cough
- Fever
- Sputum change
- Chest pain
- Pedal edema
- Orthopnea
- PND
- Swallowing difficulty

Secondary Exam

- Respiratory effort
- Accessory muscle usage
- Mental status
- Ability to speak
- Cyanosis
- Clubbing

Secondary Exam (cont.)

- Pulsus paradoxus
- Stridor
- Neck vein distention
- Wheezing
- Rales
- S3, S4, murmurs
- Hepatojugular reflux
- Lower ext. edema

Ancillary Studies

- CXR
- EKG
- PEFR if COPD/Asthma
- CBC if infection or anemia suspected
- Lateral neck films if stridor/upper airway obstruction

Common Causes of Acute Dyspnea

- Asthma
- COPD exacerbation
- Pneumonia
- CHF
- Pulmonary embolus
- Pneumothorax
- Croup
- Epiglottitis
- Foreign body aspiration
- Bronchiolitis

Acute Asthma

- Physical findings: wheezing, accessory muscle use, pulsus paradoxus
- X-ray: hyperinflation
- Lab: decreased O2 sat. and PEFR

Acute Asthma (cont.)

- Treatment: O2
  Bronchodilator aerosol q 20-60 minutes x3
  IV steroids
  Antibiotics only if bacterial pneumonia

Acute Asthma (cont.)

- Admit: if PEFR< 40% of predicted after treatment. If PEFR 40-70%, observe for 12 to 24 hrs.

COPD Exacerbation

- Physical findings: Wheezing, clubbing, barrel chest, decreased breath sounds
- X-ray: hyperinflation
- Lab: decreased O2 sat.

Treatment of COPD Exacerbation

- O2 at 1-2 L/min
- Bronchodilator and ipratropium aerosols
- Antibiotics, if indicated
- Admit: if lung exam fails to clear

Pneumonia

- Physical findings: fever, fremitus, rales
- X-ray: infiltrates, consolidation, effusion
- Lab: normal or high WBC, normal or low O2 sat.

Treatment of Pneumonia

- O2
- Fluids
- Antibiotics
- Admit: advanced age, leukopenia, bacteremia, hypoxia, multilobular involvement, metastatic infection, comorbid illness

Congestive Heart Failure

- Physical findings: rales, edema, neck vein distention, S3, S4, murmurs, hepatojugular reflux, hypertension
- X-ray: interstitial edema, effusion, cardiomegaly
- Lab: decreased O2 sat. Check EKG and hematocrit.

CHF Treatment

- O2
- IV furosemide 20-60 mg.
- Control BP and arrythmias.
- Admit: if new diagnosis, ischemia, persistent hypoxia, or if lungs fail to clear to baseline

Suspected Pulmonary Embolus

- Physical findings: tachycardia, lower ext. swelling, friction rub, wheezing
- X-ray: may be normal. Look for atelectasis, pleural effusion, wedge-shaped density.
- Lab: low O2 sat., RBBB

Treatment of Suspected Pulmonary Embolus

- O2
- IV
- Admit to ER for ABG, coag studies, and V-Q scan

Pneumothorax

- Physical findings: absent breath sounds, hyperresonance
- X-ray: collapsed lung, mediastinal shift
- Lab: low O2 sat.

Treatment of Pneumothorax

- O2
- IV
- Chest tube and/or sclerotherapy if > 20%
- Admit all cases for observation and management

Croup

- Physical findings: inspiratory stridor, rhonchi, retractions
- X-ray: subglottic narrowing (plain film or CT)
- Lab: normal or low O2 sat.

Treatment of Croup

- Humidified O2
- Racemic epinephrine
- IV/IM dexamethasone
- Nebulized budesonide
- Admit: if hypoxic, fatigued, significant retractions, or RR> 40

Epiglottitis

- Physical findings: stridor, drooling, fever
- X-ray: enlarged epiglottis
- Lab: high WBC, mormal or low O2 sat.

Treatment of Epiglottitis

- Do not examine throat or take child from mother
- 100% O2
- IV ceftriaxone
- If stridor: consider nasotracheal intubation or tracheotomy
- Admit: all cases

Foreign Body Aspiration

- Physical findings: stridor, wheezing, persistent pneumonia
- X-ray: foreign body, air trapping, hyperinflation
- Lab: normal or low O2 sat., normal or high WBC

Treatment of Foreign Body Aspiration

- O2
- Follow ACLS guidelines if compromised airway
- Remove proximal F.B. by laryngoscope
- Admit: if extraction attempts fail or if distal F.B. (may need bronchoscopy)

Bronchiolitis

- Physical findings: wheezing, flaring, retractions, apnea
- X-ray: hyperinflation, atelectasis
- Lab: normal or low O2 sat., normal WBC

Treatment of Bronchiolitis

- O2
- Hydration
- Albuterol aerosols
- Ribavirin for high risk cases
- Admit: if hypoxic, feeding poorly, underlying disease, or RR> 50.