Chapter 25 – Dyspnea

Episode overview:

1) List 10 critical causes of dyspnea

Wisecracks:

1) Outline your approach to the acutely dyspneic patient
2) Name 6 uncommon causes of dyspnea

Rosen’s in Perspective

“Dyspnea”: uncomfortable sensation of breathlessness. “Air hunger”
- Non-specific spectrum from mild disease to severe disease
- May be referred to as different terms

➢ Other terms to know

Tachypnea – RR > normal → >45-60 bpm in neonates; to >18 bpm in adults
Hyperpnea – Greater than normal minute ventilation to meet metabolic requirements
Hyperventilation – Minute ventilation exceeding metabolic demand
- ABG showing normal PaO₂
- Uncompensated respiratory alkalosis
- Elevated pH
Dyspnea on Exertion (DOE) – Dyspnea provoked by physical effort
Orthopnea – Dyspnea in a recumbent position
Paroxysmal Nocturnal Dyspnea (PND) – Sudden SOB at night

➢ Pathophysiology

- Normal breathing controlled by:
  - Centrally by the respiratory centres in the medulla oblongata
  - Peripherally by the chemoreceptors in the carotid bodies
  - Mechanical centres in the diaphragm and skeletal muscles
- Any imbalance in these sites leads to dyspnea – mechanism not fully understood

Perception of dyspnea relates to:
- Increased lung resistance
  - COPD or Asthma
- Increased respiratory drive
  - Severe hypoxemia, acidosis, centrally acting toxins, or CNS events
1) List 10 critical causes of dyspnea

First key question:
- Is the dyspnea cardio-pulmonary OR toxic-metabolic?

Differential - see table 25-1

CRITICAL CAUSES:

Pulmonary
1. Airway obstruction
   a. Heimlich maneuver & direct laryngoscopy with McGill forceps
2. Pulmonary embolism
3. Non-cardiogenic pulmonary edema
4. Anaphylaxis
5. Respiratory failure
6. Tension pneumothorax +/- flail chest
   a. Severe respiratory distress, hypoxia, hypotension
   b. Decreased breath sounds, oxygen desaturation

Cardiac
1. Pulmonary edema (due to CHF)
2. Myocardial infarction
3. Cardiac tamponade

Other
1. Toxic ingestions (e.g. organophosphate ingestion)
2. DKA
3. Epiglottitis
4. CO poisoning
5. Acute chest syndrome (e.g. Sickle cell)
6. CVA / intracranial catastrophe
Wisecracks

1) Outline your approach to the acutely dyspneic patient

Management and disposition

- Dyspnea requires simultaneous evaluation and management
  - Use the MOVIE approach and initiate empiric treatments based on:
    - Trauma
    - Anaphylaxis
    - Foreign body
    - Infectious causes
    - Cardiac causes (dysrhythmia, ischemic, CHF)
    - PE
    - Asthma / COPD

Signs & Ancillary Studies

See table 25-2-4.

- Full set of vitals, patient’s general appearance, skin/nail findings
- Neck, lung, chest, cardiac, extremities and neuro exam can assist with diagnosis
- Tests to consider:
  - Vitals with SPO$_2$ however know when it is unreliable
  - ABG
  - ECG
  - Beside U/S
  - CXR
  - Labs - rule out anemia, infection, electrolyte abnormalities, or renal failure
    - WBC is of little sensitivity or specificity
    - BNP, troponin, and D-dimer may be of some use
  - Soft tissue lateral neck - for upper airway processes
  - CT chest for intra-thoracic causes (PE, pneumonia, etc.)

2) Name 6 uncommon causes of dyspnea

- Valvular heart disease
- Cardiomyopathy
- Mechanical interference (pregnancy, ascites, obesity, hiatal hernia)
- Ruptured diaphragm
- Thyrotoxicosis
- **Guillain-Barre syndrome**
- Tick paralysis
- MS
- ALS
- Polymyositis
- Porphyria