This is my lecture about breathing

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Objectives

- Review pulmonary HTN and discontinuation of PH meds at end of life.
- Review and understand different causes of dyspnea in a hospice setting.
- Be familiar with different treatments of dyspnea.

Pulmonary Hypertension

- Elevated mean pulmonary artery pressure >25mmHg at rest
- Progressive, often fatal
- Group 1: PAH
- Group 2: Left heart disease
- Group 3: Chronic lung disease/hypoxemia
- Group 4: Chronic Thromboembolic
- Group 5: Multifactorial

Pulmonary Hypertension Prognostication

- REVEAL PAH score
- WHO grouping
- Demographics/comorbidities
- NYHA class
- Vital signs (SBP, HR)
- 6 min walk
- BNP
- Presence of pericardial effusion
- PFTs
- RHC – mRAP, PVR

Pulmonary Hypertension Treatment

- Class IV
- Epoprostenol (Flolan, Veletri) – continuous IV
- Hickman catheter
- Prostacyclin, vasodilator of all vascular beds, inhibits platelet aggregation
- Half life is 6 minutes

One Year Survival – Group 1 - untreated

- 0-7 95-100%
- 8 90-95%
- 9 85-90%
- 10-11 70-85%
- 12-22 <70%


3 year survival: 48%
5 year survival: 34%
Pulmonary Hypertension Treatment

- Treprostinil (Remodulin, Tyvaso) - Inhaled, IV, PO
  - Also a prostacyclin, inhibits platelet aggregation
  - Half life is 4 hours

Prostacyclin Side Effects

- Flushing
- Jaw pain
- Headache
- Hypotension
- Nausea

Pulmonary Hypertension End of Life

- Discontinuation of prostacyclins
- Premedication with benzo and opioid
  - Epoprostenol – taper q 25-30 min (4-6 half lives)
  - Treprostinil – taper q 4-6 hours (half life 4 hours)
  - Reduce by 20-25%
  - Usually done inpatient

Dyspnea

**FAST FACTS AND CONCEPTS #264**

**PROSTACYCLIN WITHDRAWAL IN PULMONARY HYPERTENSION**

Christi Barfield MD and Lindy Landsaat DO in cooperation with the COPE Collaborative

**I HAVE AN IDEA**

**LETS CHANGE THE TOPIC!**
Differential

- ABCDE
- A – Airway
- B – Blood
- C – Cardiac
- D – Diaphragm
- E – Everything Else

Dr. JP Greenwood

Airway

- Mass
- Stenosis
- COPD
- Asthma
- Fibrosis/pneumonitis
- Grapes

Blood

- Pulmonary Embolism
- Hyperviscosity
- Anemia

Cardiac

- Acute Coronary Syndrome
- Heart failure
- Pulmonary HTN
- Arrhythmia
- Pericardial effusion/tamponade

Diaphragm

- Neuromuscular disease (ALS, MG)
- Injury or mass effect on C3-C5 (phrenic nerve)
Case #1 Breathless Betty

- 82 year old female with breast cancer, admitted to inpatient hospice facility with uncontrolled bony pain from metastatic lesions. PPS, 50%. Goal is to get better symptom control and return home.

- History of HTN, CAD, hypothyroidism

- Meds: Aspirin, levothyroxine, fentanyl 12mcg TD, oxanol 5mg PRN.

- Day 3, pain is controlled with addition of dexamethasone, increase in fentanyl to 25mcg and rotation to PRN dilaudid, but patient develops acute shortness of breath.

- She reports palpitations and mild chest discomfort.

Differential?

- Acute coronary syndrome/MI
- Pulmonary embolism
- Congestive heart failure – pulmonary edema
- Arrhythmia
- Pleural effusion
- Aspiration
- Anxiety

Physical Exam

- BP 110/52
- HR 150
- RR 28
- T 98.9
- 89% on RA

Alert and oriented but in mild respiratory distress

Resp: Faint bibasilar crackles, no wheezes or rhonchi, increased work of breathing

CV: Tachycardic, irregularly irregular

Neck: JVD noted

Ext: Trace bilateral lower extremity edema
Diagnosis?

- Acute coronary syndrome/MI
- Pulmonary embolism
- Congestive heart failure – flash pulmonary edema
- Arrhythmia
- Pleural effusion
- Aspiration
- Anxiety

Treatment

- Metoprolol
- Diltiazem
- Coumadin
- Lasix
- Loveox
- Dilaudid
- Digoxin
- Cardioversion
- Ativan
- O2
- Electrolytes

Case #2 Labored Larry

- 72 yo M with history of Stage IV lung cancer with mets to bone and brain. Admitted to inpatient hospice for management of nausea, vomiting and delirium and end of life care.
- History of DM, HDL, HTN, CAD
- Meds: Roxanol 5mg PRN, Zofran PRN, Senna 5s, Miralax, Ativan PRN
- Symptoms improved with initiation of scheduled Haldol.
- PPS 20% with rapid deterioration.

How does your management change?
The day following admission, he is noted by his RN to have more labored breathing. He is now minimally responsive.

BP 89/51 HR 110 RR 30 T 100.8

Minimally responsive, appears uncomfortable due to dyspnea
Tachycardic, regular
Coarse throughout, more so on right. Faint inspiratory and expiratory wheeze over left upper lobe. Audible upper airway secretions. Labored
Hands and feet are cool and mottled

Differential?

- Aspiration pneumonia
- Airway obstruction (mass vs mucous plug)
- ACS
- PE
- COPD exacerbation
- CHF exacerbation
- Sepsis/acidosis

Treatment

- Morphine
- Lasix
- Levaquin
- Duonebs
- O2
- Scopolamine
- IVF
- Ativan
- Dexamethasone
- Reposition

Pneumonia

- Study of hospice patients found 79% had evidence of pneumonia and in 44% this was the leading cause of death. (N=38)
- Conflicting findings regarding abx for symptom relief
- No improvement in symptoms, prolonged survival
- Serious infection → sedation → peaceful death
Parting thoughts

- Sometimes dying people look short of breath
- Acidosis
- Fever
- Brain injury/increased ICP

References