Northwest Community EMS System

March 2018: HF vs. Asthma…Which way to go?
Credit Questions

Name:	Date submitted:
EMS Agency	Credit awarded (date):
EMSC/Educator reviewer:	Returned for revisions:
	Revisions recd.:

This packet should take 2 hours to complete – which earns you the equivalent of the 2 hour live CE class.
Sources of information: Sept CE handout; SOPs;

Heart Failure

1. **What 3 risk factors from patients past medical history may lead EMS to suspect a ***cardiac*** etiology?**
   a.
   b.
   c.

2. **What 3 risk factors from patients past medical history may lead EMS to suspect a ***pulmonary*** etiology?**
   a.
   b.
   c.

3. **List 8 underlying etiologies that can cause shortness of breath in a patient as listed in the pp presentation**

4. **In reading the narrative for Case #1, what things can be learned for this patient's history and potential problems she is at greater risk?**

5. **How can the waveform in capnography help to make a diagnosis or lead EMS down a path for appropriate treatment when the history of a patient brings both cardiac and respiratory problems?**

6. **Why do patients in acute left HF present with shortness of breath and ↑ WOB?**
   A. Engorged pulmonary vessels leak fluid into interstitial spaces
   B. Exhalation is prolonged due to intense bronchospasm
   C. Increased surfactant causes alveoli to balloon open
   D. Blood flows backwards from the LV into the lungs

7. An 86 y/o female complaining of an acute onset of shortness of breath is found sitting upright in bed coughing up frothy sputum. BP 180/90; P 130 and irregular; RR 36 and labored. Lung sounds: bilateral crackles halfway up both lung fields. There is no JVD noted. ECG: atrial fibrillation.

What should a paramedic suspect?

   A. Right ventricular failure
   B. Acute pulmonary edema
   C. Cardiogenic shock
   D. Myocardial infarction

8. What drug should be given first for the above patient and for what purpose?

Drug: **Purpose:**

9. Why is NTG dosed differently for a patient in HF than one with ACS from an acute MI?
   A. Most pts in HF have no chest pain so less NTG is needed to relieve their distress
   B. The BP is less stable in pts with ACS so they can only tolerate smaller doses of NTG
   C. Once CPAP is started, NTG cannot be placed SL, so 1 or 2 tabs is all that can be practically given
   D. NTG is given to reduce RV preload in HF and needs continuous blood levels to achieve its therapeutic benefit

10. If the BP drops to < 90 mmHg after applying C-PAP at 10 cm to an adult in pulmonary edema who weighs 200 lbs, what is an appropriate *first* action?
   A. Increase the PEEP to 15 cm
   B. Start a dopamine drip at 36 mcgtts per minute
   C. Reduce the amount of PEEP and recheck the BP
   D. Call medical control and seek an order for norepinephrine

11. A conscious and alert adult is being treated with CPAP for HF. The pt is very anxious and not tolerating the mask well. VS: BP 180/90, P 116, R 28, SpO_2 86%; lungs have bibasilar crackles. After giving midazolam 2 mg IVP, what action is indicated first?
   A. Continue coaching; may repeat midazolam q. 2 min to 10mg prn
   B. The pt is decompensating and needs immediate intubation
   C. Remove the C-PAP and switch to a nasal cannula
   D. Initiate a norepinephrine drip at 8 mcg/min

12. **An anxious 68 y/o is c/o severe difficulty breathing for the past 30 min. The pt is exhausted and speaking in 2 word gasps. PMH: AMI two years ago. Skin: diaphoretic with cyanotic lips and hands; neck veins are flat; lung sounds have diffuse bilateral crackles; no ankle edema. VS: BP 70/40; P 100,**

ECG SR; R 36; SpO_2 78%; $ETCO_2$ 25 with square waveform. What should a PM suspect?

   A. Cor pulmonale
   B. Pulmonary embolus
   C. Unstable angina
   D. Cardiogenic shock

13. Per SOP's, which of these is indicated FIRST for the above patient?

A. O2 / C-PAP at 5 cm PEEP

B. Dopamine at 5 mcg/kg/min IVPB

C. 15 L O_2/NRM and prepare for DAI

D. Norepinephrine run at 8 mcg/min IVPB

14. **What do the monitor findings to the right suggest in a patient with a history of asthma and heart disease who presents with dyspnea and bilateral wheezing?**

A. Cardiogenic shock

B. Heart failure with hypoxia

C. Asthma with ventilatory failure

D. Hypertensive crisis and end organ failure

15. **What is the desired action of norepinephrine?**

A. Beta blocker

B. Potent alpha blocker

C. Parasympathetic blocker

D. Beta 1 and alpha agonist

16. **A hypovolemic patient with suspected cardiogenic shock can receive NS IVF in 200 mL increments up to 1 L to achieve a SBP ≥ 90 (MAP ≥ 65); given what set of circumstances?**

_____

_____

Medication
gabapentin
Trazodone
Aspirin
Cholecalciferol
Uloric
Norvasc
Loratadine
Norco
Metoprolol
Zoloft
Acetaminophen
Bengay
Aplisol
ferrous sulfate
insulin detemir
Risamine
Benadryl
Dulcolax
Miralax

17. **Identify 7 drugs out of this list explaining what is the drug used for in most patients?**

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_____

_____

_____

_____

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_____

18. How can a medication list help to determine the treatment plan for patients with complaints of SOB?

_____

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_____

19. **What are the two major risk factors for developing heart failure, especially in the elderly according to the Emergency Medicine report found in the pp?**

20. **What are the underlying potential causes of wheezing when listening to lung sounds found in the pp?**

A	
S	
T	
H	
M	
A	
TIC	

21. **What is this patient doing and why (bigger picture found also in pp)?**

22. **What five kinds of patients are known to be harmed by hyperoxia (PP)?**

23. **Identify two classifications of heart failure and give two examples of each (PP).**

22. **What signs and symptoms are seen in each type of heart failure (PP)?**

23. **What is released by the SNS to compensate for a patient with hypotension from heart failure?**

24**. How does CPAP work for a heart failure patient and what is the benefit of CPAP?**

25. **What are the contraindications for CPAP with heart failure?**

26. **What are the disadvantages of intubation generally speaking?**

27. **In the pp, patient #5, based on the narrative, history, and physical exam, how would you treat this patient?**

Asthma

28. **List three clinical findings consistent with the pathophysiology of asthma.**
    1.
    2.
    3.

29. C**erebral function is affected by what four things (PP)?**

30. Why would a RR of 40 and an EtCO2 of 40 be considered a bad thing (PP)?

31. What does a shark fin wave form indicate for a patient with SOB?

32. In a severe acute asthma attack, which breath sounds are the most alarming?

A. Inspiratory wheezes
B. Both inspiratory and expiratory wheezes
B. Expiratory wheezes
D. Diminished or absent breath sounds

33. Which of these should be given first to a 15 y/o with a mild asthma attack who has bilateral wheezing, an adequate SpO_2, and no exercise intolerance (SOP)?

A. Albuterol & ipratropium via MDI or HHN
B. Epinephrine IM
C. Magnesium sulfate IVP
D. Benadryl IVP

34. **Which drug should be considered first for a 30 y/o patient with a severe asthma attack who has bilaterally diminished breath sounds and signs of dehydration and exhaustion (SOP)?**

_____

_____

35. A patient with severe asthma is being treated with CPAP. The PEEP dial shows a reading of 14. What outcome should be anticipated with this value?

A. Gastric distention, vomiting & aspiration
B. Over pressurized chest, ↓ venous return and ↓ BP
C. Rapid reduction in patient distress & correction of hypercarbia
D. Excessive air leak around the mask and reduction in therapy effectiveness

36. An adult with a history of asthma is c/o dyspnea. The patient is awake, alert oriented X 3 and in moderate ventilatory distress. Breath sounds have diffuse inspiratory and expiratory wheezing; skin is warm and dry. VS: BP 120/76; P 88; R 24; SpO_2 95% $EtCO_2$ 42 with the waveform below.

Which of these is indicated *first*?

A. Magnesium slow IVP
B. Epinephrine 1 mg/1 mL IM
C. Albuterol and ipratropium /HHN
D. CPAP started at 5-10 cm PEEP

37. CC: 30 y/o female is c/o the worst asthma attack of her life.

Meds: Ventolin, Medrol

PE: Severe respiratory distress, only able to give 1-2 word answers; using accessory muscles; retractions present; Lungs: bilaterally diminished breath sounds

VS: BP: 150/90; P 150; R 40 & shallow; SpO_2 90%

Which of these is indicated first?

A. O2 4 L/ NC; albuterol & ipratropium/HHN
B. O2 4 L/NC and magnesium sulfate slow IVP
C. O2 15 L/NRM and epinephrine (1mg/10mL) IVP
D. O2 /CPAP at 5-10 cm PEEP and epinephrine 1 mg/1mL IM

38. **What is the desired action of epinephrine when given to a patient with an asthma attack?**

A. Anticholinergic agent to dry secretions
B. Beta 2 stimulant to produce bronchodilation
C. Alpha stimulant resulting in vasoconstriction
D. Anti-inflammatory agent to decrease hyperreactivity

39. What is the initial dose of epinephrine for a patient who is experiencing an asthma attack?

A. 0.3 mg

B. 0.5 mg

B. 1 mg

C. 2 mg

40. What is the indication for giving magnesium sulfate to a patient with an asthma attack?

A. Moderate respiratory distress with a history of beta blocker use
B. Moderate distress with increasingly peaked T waves on the ECG
C. Mild to moderate distress unresponsive to albuterol and ipratropium
D. Severe distress unresponsive to epinephrine, albuterol & ipratropium