EMS Case Study #1  Pulmonary Edema

Instructions

This is a case study – training evolution - for the management of a patient complaining of shortness of breath. The training can be delivered as a practical medical call with somebody acting as the patient or can be a table top discussion that allows all personnel to participate at the same level.

The underlying illness is a patient with congestive heart failure. The “patient” will present with severe shortness of breath and so the students must actively engage the patient to obtain an appropriate history.

Students are not to receive copies of the training information; this requires them to write down the information they obtain from their assessment as if they were in the field.

Students must treat the patient in accordance with your department’s approved protocols.

This scenario should last between 30 minutes and 1 hour depending on class size.

Each student shall give a report of their clinical findings, treatments, patient’s condition after treatment, and hospital report.

Due to staffing issues an ALS ambulance crew is not available.
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Scenario

Ambulance 317 is dispatched to a residence for a 62 year old male complaining of shortness of breath. Ambulance is staffed by EMT-basic level trained personnel only. It is 1900 hours. Response time is 4 minutes. The dispatcher informs the responding crew that the patient is unable to speak beyond a few words over the telephone.

On arrival the crew finds the patient sitting in a recliner located in the living room of his small home. The only other occupant is a small dog that continues to bark at you from under the sofa. The patient is sitting forward with his hands on his knees. He is using all of his accessory muscles to breath. His lips are pursed. His skin color is pale to ashen. Gurgling can be heard and he has a productive cough that is producing pink tinged sputum.

When asked questions, the patient can only utter “yes” or “no” or point.

Patient Information

Mr. Joe Jenkins is a retired welder.

Medications are located on the table next to his recliner, they include: potassium chloride, Lasix, Lopressor, nitroglycerin, Lanoxin.

The doctor’s name on the medication bottles is Dr. Mary Vanderhouse.

Assessment Findings

Blood pressure: 180/100
Respiratory rate: 30, shallow
Lung sounds: noted congestion in all lobes.
Oxygen saturation: 80% on home oxygen at 2 liters per minutes
LOC: alert and awake, presents with two word dyspnea.
Pulse: 140 irregular
Pupils: equal and reactive
Physical findings:

    HEENT: No JVD, No TD, pursed lips, maintaining his own airway.
    CHEST: Lung sounds as noted.
    ABD: Soft not tender
    EXT: +2 pitting edema at ankles
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Critical Decision Factors

- Is this patient in respiratory distress?
- What do you feel is the underlying illness?
- What can you obtain from patient’s medications?
- Is rapid or emergent transport indicated?
- Should the patient be laid supine on the cot or allowed to sit upright.

Key Treatment Issues

- Is scene safe to enter?
- ABC with history.
- High-flow oxygen by a non-rebreather mask at rates greater than 10 lpm.
- Rapid transport to hospital.
- Monitor oxygen saturation.
- If saturations fail to increase, consider assisting ventilations with BVM.
- Secure home before leaving.
- Notify law enforcement or animal control to take custody of animals or contact family members to take care of animals.

Conditions During Transport

- No increase in oxygen saturation.
- Increased shortness of breath.
- Patient unable to speak.
- Skin color changes to ashen with cyanosis at nail beds.
- Vitals Change:
  - BP: 140/60
  - Pulse: 150
  - O2 Sat: 80 with oxygen by mask
  - Airway: frothy sputum draining from mouth.

Key Treatment Issues

- Suction mouth
- Recline patient slightly to aid in airway control
- Begin to assist ventilation with BVM and 100% oxygen.
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Radio/Hospital Report

*The hospital report will vary from student to student but should contain all pertinent information. An example would be as follows:*

“This is ambulance 317, we are en route to your facility emergency status with a 62 year old male patient of Dr. Vanhouse, transporting from patient’s residence with a chief complaint of shortness of breath. Patient has a history of congestive heart failure. On our arrival we found the patient sitting in a recliner, with his hands on his knees breathing through pursed lips and presenting with one to two word dyspnea. Patient is on home oxygen at around 2 liters per minute. We establish high flow oxygen at 15 lpm via a non-rebreather mask. Initial O2 saturation was 80%. Initial vitals were BP 180/100, pulse 140 and irregular, respiratory rate at 30 and shallow. Lung sounds were congested with patient producing pink tinged sputum. En route to your facility patient’s shortness of breath increased and patient became unable to speak. We suctioned the airway and began to assist ventilation using a BVM and 100% oxygen. We will be at your facility within ten minutes. Do you have any questions or orders?

Case Summary

Many patients that the EMT will encounter are living with congestive heart failure. In this case our patient was a welder all of his life and exposed to fumes from his working environment. The EMT should be willing to assist in ventilating a conscious patient. ALS intervention would have been beneficial but rapid transport to the hospital was the best choice any medic could have made.