

COPD: Chronic Obstructive Pulmonary Disease

Chronic Obstructive Pulmonary Disease (COPD) can significantly affect one in four adults, and a COPD exacerbation can be a very common complaint for EMS providers. COPD includes several different disease processes in the definition. Most commonly are emphysema (airway collapse) and chronic bronchitis (airway inflammation and secretions). Asthma (reactive airway) is by definition a chronic obstructive pulmonary disease, but has many differences that will often exclude it. We are going to focus on emphysema and chronic bronchitis.

Pathophysiology

- Emphysema – gradual destruction of the walls between the alveoli (the sac-like structures where gas exchange occurs) so that gas exchange cannot take place.
- Chronic bronchitis – the bronchi (the major air passages in the lungs) are swollen, edematous, and covered with mucus. Damage to the bronchiolar lining also occurs, so the airways can't naturally clear the secretions.

Appearance

- “Pink puffer” – emphysema patients may have higher PO_2 readings so will still have a pink color. Respiratory effort can be described as shallow, puffing, tachypneic respirations through pursed lips. These patients have an increased metabolic rate and can be very thin.
- “Blue bloater” – chronic bronchitis patients may appear swollen and cyanotic due to the hypoxemia and edema. These patients often have decreased right heart function that causes the edema.

History and Physical Exam Findings

- Most COPD patients (or the family) can tell you that they have a COPD history.
- 20 or more pack/year history of smoking (or one pack/day for a year).
- Recent history of respiratory infection, fever, or malaise.
- Don't forget to ask what medications have been taken and the patient's response to them.
- Classic respiratory distress signs – shortness of breath, wheezing, tripod positioning, pursed-lip breathing.
- JVD or jugular venous distention due to increased pressures from right heart failure.
- Increased A-P chest diameter or “barrel chest” appearance due to pulmonary hypertension.
- Clubbing of the fingers due to chronic hypoxia causing vasodilation and enlargement of the tips of the fingers.

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Treatment

- Oxygen – remember that “all patients who need oxygen should receive it in the field.”
 - Delivery devices can include a nasal cannula, a non-rebreather mask, or a BVM, depending on the level of patient distress.
 - Use the whole patient picture including pulse oximetry readings, respiratory effort, and the patient’s perception of distress to dictate the delivery device and amount of oxygen needed.
- Beta agonists for the acute exacerbation – most commonly albuterol via metered dose inhaler or nebulizer.
- Steroids and anticholinergics – Atrovent is a common home medication that the patient may have.
- Prednisone or other oral steroids may also be used for the acute exacerbation.

For more detailed information, please visit <http://www.emsworld.com/article/10321673/beyond-the-basics-copd>