Every Breath you Take: The Most Common Respiratory Diagnoses in EMS

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Respiratory Calls are the 2nd most common medical calls we see in EMS. Proper respiratory care can be the difference between life and death, literally.

**List of Must Haves**

A drive to breathe

An intact airway and respiratory tract

A diffusion friendly place for gas exchange

Oxygen friendly RBC with hemoglobin

An intact circulatory system

**Rules of Breathing**

Silent breathing is abnormal

Noisy breathing is abnormal

Visible breathing is abnormal

Positional breathing is abnormal

**Oxygen**

Everything in moderation

PALS, ITLS, ACLS, NRP, etc…. Advise limiting O2 administration.

Premmie Babies develop \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but only in high \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, high \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ environments.

Oxygen Free Radicals occurs anytime we breathe oxygen at concentrations higher than \_\_\_\_\_\_\_%. The by-products that occur impede healing and recovery.

**Typical S/S for Respiratory Distress**

Dyspnea, restlessness, anxiety, tachypnea,bradypnea, cyanosis, retractions, diminished ability to speak. A late sign of respiratyory distress is sleepiness and lethargy caused by a high\_\_\_\_\_\_\_\_.

Remember! \_\_\_\_\_\_\_\_\_ O2 levels and/or \_\_\_\_\_\_ carbon dioxide levels can depress cardiovascular function.

***Retractions*** are when the patient is sucking in air at such a high negative pressure, the skin between the ribs and at the top of the sternum get pulled in or puckered.

**Five Most Common Respiratory Diagnoses**

COPD Exacerbation

Congestive Heart Failure

Pneumonia

Pulmonary Embolus

ARDS – Adult Respiratory Distress Syndrome

**COPD**

Most common in smokers. An umbrella term that includes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Asthma and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Chronic Bronchitis is an inflammation of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Chronic productive cough, dyspnea, fatigue and lung infections are the criteria to be diagnosed with this.

Emphysema is inflammation at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. S/S are hacky cough without production, and pursed lip breathing. Because carbon dioxide is retained, the brain changes it’s chemistry over time and makes oxygen the driving force behind breathing rather than the normal carbon dioxide.

Pink Puffers: \_\_\_\_\_\_\_\_\_\_\_\_\_color, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, use of accessory muscles, tachycardia and distended neck veins due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the thorax. These folks are emaciated and are always sitting up with their arms akimbo

COPD Treatment

OXYGEN, RT TX, Steroids. Remember it takes Solu-Medrol IV \_\_\_\_\_\_\_\_\_\_\_\_ to peak in action. If your patient doesn’t have this much time, consider nebulizing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which is a quicker acting steroid. Magnesium is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and can be given also. These folks are anxious (and rightly so), if you give them something for anxiety, give a small dose. You don’t want to knock out their drive to breath.

Asthma is a constriction of the bronchioles. S/S include inability to take a deep breath in or out and profound wheezing (from the narrowed airways) that can be heard sometimes without a stethoscope.

ASTHMA Treatment

In addition to the previous medicaitons mentioned under COPD treatment, if those aren’t working then you can give Epinephrine 1:1000 0.3 mL SQ to further bronchodilate the airways and turn the condition around. We DON’T intubate someone with an asthma attack if at all possible. Doing this increases your patient’s chances of developing complications by 45%.

**CHF**

CHF: If your patient has a 50% ejection fraction, he/she is “at risk” for developing CHF. If the have less than 30%, they HAVE CHF and may not know it. S/S include tachypnea, tachycardia, hypertension, jugular vein distention, edema, productive cough (frothy looking) , rales/crackles in the bases. Another question to ask them is if they can lie flat and breathe at the same time. If not, then they probably have CHF.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be very high in CHF as opposed to ARDS\*

Blue Bloaters: \_\_\_\_\_\_\_\_\_\_ color, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, use of accessory muscles, tachypnea and distended neck veins due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the vasculature.

CHF Treatment

OXYGEN, RT TX, CPAP or Ambu-Bag with PEEP set high. Captopril (or similar ACE Inhibitor), Nitro Drip (or one dose SL every 5 minutes). Lasix used to the be go-to for CHF but it really isn’t effective and actually puts the patient in dehydration and electrolyte imbalances that the ICU has to spend re-correcting after the CHF is gone.

**PNEUMONIA**

Common complication of flu and colds. Can cause “chest pain” but not the cardiac type.

S/S include all of the typical respiratory S/S PLUS FEVER and PRODUCTIVE COUGH.

Chest X-Rays are “3 days behind the illness” and shouldn’t be the only determining factor in diagnosis.

Pneumonia Treatment

OXYGEN, RT TX, nebulized saline (to thin out the sputum) or Atrovent (to dry up the secretions), Antibiotics.

Cough suppressants are okay in order to get some rest but coughing is a good thing. Encourage use of cough medication at night.

**WHAP VAP !!! Wean Pt, Hand Hygiene, Aspiration prevention, Prevent Contamination**

VAP is Ventilator Acquired Pneumonia and is a common complication of intubation. When the following steps are taken the incidence of VAP has been shown to decrease by 60%! (as of the latest studies)

Prevent Contamination

Sedation Vacation

Turn, Cough, Deep Breathe, ETT Suctioning

HOB up 30 degrees

Heated conduit tubing on ventilators

Excellent Oral Care

**PULMONARY EMBOLUS**

A blood clot that forms (usually in the lower legs) which breaks loose and travels to the pulmonary vasculature and blocks ventilation. Typical in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, PVD w/o blood thinners, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, prolonged immobilization, hormone replacement therapy or birth control and recent injury to the leg.

S/S include Chest pain, dyspnea, hypoxia, anxiety, Low ETC02, cyanosis above the nipple line, cough with blood tinged sputum, diaphoresis, leg swelling. Breath Sounds will be equal until very very late in the process.

PE Treatment

OXYGEN, RT TX, Heparin drip and ABSOLUTELY NO EXERTION.

SIZE MATTERS: small PE are also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and sometimes aren’t even detected. They dissolve on their own and don’t cause any problems. Moderate PE can cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Large PE will cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Very large are also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and will cause shock or sudden death.

**ARDS**

Acute Respiratory Distress Syndrome (ARDS) is also called, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It has a \_\_\_\_\_\_\_\_\_\_ survival rate if detected early. Commonly confused with \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. BNP will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and can help the diagnostician differentiate between CHF and ARDS.

**Three Stages of ARDS**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ stage occurs the 1st 2-4 days after injury

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ stage involves a decrease in elasticity at this point. Alveolar walls are thickened and dense, inhibiting gas exchange.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lungs begin to recover and function normally. Can take as long as 6-12 months to fully recover.

Diagnosis includes a history, lab results (BNP!), chest x-ray and an FI02 – PA02 ratio. This is only available for those with access to a recent ABG.

PA02 divided by the FI02 (in decimal form). If it is less than 200 = ARDS

So, a healthy patient has a PA02 of 80 and he is on room air (FI02 would be 21% or 0.21 in decimal form) 80 / 0.21 = 380. Less than 200? NO, then your patient doesn’t have ARDS.

How about a patient with a PA02 of 40 and their FI02 is 80%. 40 / 0.80 – 50. Less than 200? YES. They have ARDS.

ARDS Treatment

OXYGEN (in the form of CPAP if not intubated) If they are on a ventilator (which is highly likely) change your settings to lower tidal volumes, lowest FI02 possible, higher pressure settings and PEEP.

Give comfort measures: pain meds, sedatives, Sedation vacation to prevent VAP. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ show promise but only after the initial inflammation has started to go down.