For Complete July MDR Click Here

Oxygen — Yes, it can be toxic !!

2018 British Medical Journal review of the data and clinical practice guideline

- Give O2 if SpO2 <90%
- **Goal SpO2 no higher than 94%**
- Goal SpO2 is then 90-94%. Higher O2 saturations can lead to WORSE outcomes in many cases.

Hyperoxia can cause:

- **systemic vasoconstriction** (hypertension) and increase cardiac output (1).
  - But…it dilates pulmonary vessels. Opposing effects.
- **May actually INCREASE infarct size in acute MI.** Hyperoxia causes coronary vasoconstriction. (The O in MONA is dead!) (2,3)
  - No benefit to supplemental oxygen in AMI….if you are not hypoxic to start with.
- **Titrated oxygen treatment in COPD exacerbations had better outcomes than high flow oxygen.** (titrated oxygen = Nasal canula, SpO2 88-92%. High flow = O2 8-10 L/min) (3)
  - Less acidosis with titrated O2 vs high flow. High flow in COPD can lead to acidosis that is correctable with reduced oxygen concentration.
  - Titrated oxygen reduced death from respiratory failure 58% for all patients and 78% for COPD patients.
- **Hyperoxia can depress respiratory drive**. This can be dangerous in asthma, COPD, and obesity hypoventilation syndrome (5).

1. Circulatory and metabolic effects of oxygen in myocardial infarction – PubMed

(nih.gov)

2. Air Versus Oxygen in ST-Segment-Elevation Myocardial Infarction – PubMed (nih.gov)
3. Oxygen Therapy in Suspected Acute Myocardial Infarction – PubMed (nih.gov)
4. Effect of high flow oxygen on mortality in chronic obstructive pulmonary disease patients in prehospital setting: randomised controlled trial (nih.gov)
5. Episode 29: Why is hyperoxia harmful? – The Curious Clinicians
6. Physiology, Respiratory Drive – StatPearls – NCBI Bookshelf (nih.gov)