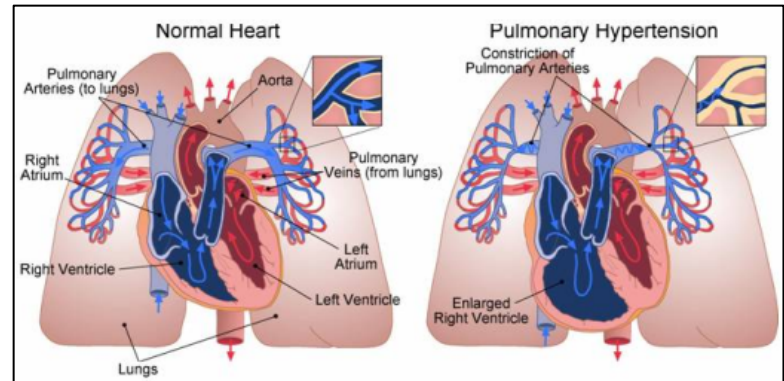


Pulmonary Hypertension

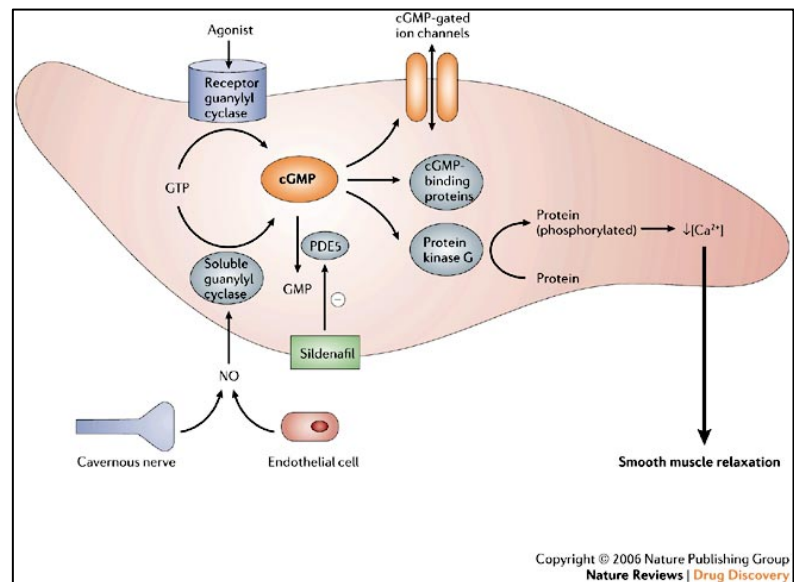
Anesthetic Pearls: Anesthetic Implications and Management of Pulmonary Hypertension

Pulmonary Hypertension is associated with hypoxia, hypercarbia, pulmonary vascular changes, increased left atrial pressure, sympathetic stimulation, and acidosis. Pulmonary hypertension is an increase in blood pressure in the pulmonary artery, pulmonary vein, or pulmonary capillaries and leads to shortness of breath, dizziness, fainting that are exacerbated by exertion. The severity of the disease is shown with marked decreased exercise tolerance and heart failure.



Treatment:

1. Optimize Oxygenation – high FiO₂ and correction of anemia
2. Hyperventilation – decrease CO₂ causing pulmonary vasodilation and make sure expiratory phase adequate for pulmonary blood flow
3. Mean Airway Pressure – small amount of PEEP may be beneficial (avoid high PEEP), and maintain paralysis
4. Decrease Sympathetic Stimulation – minimize and attenuate, Rx: narcotics, benzodiazepines
5. Avoid Acidosis – slight alkalosis may help (~ pH 7.6)
6. Vasodilators – watch for drop in SVR as well as PVR (Milrinone / Amrinone, NTG, ? SNP, Prostaglandin E-1, Priscoline, and Prostacycline)
7. Inotropes – improvement of forward flow; Isoproterenol (Isuprel) and Epinephrine mildly reduce PVR in adults (lesser evidence for marked PVR reduction in infants and young children)
8. Nitric Oxide – only drug to selectively decrease PVR



Key Point:

The most important changes that can be made to PVR are done by controlling **PaO₂**, **PaCO₂**, and **pH**.