

# **Airway Management in Patients with Right Heart Failure**

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# Outline

- 1) Decision Making
- 2) Preparing for hemodynamic collapse
- 3) Induction and Intubation
- 4) Immediate post-intubation management



# Decision Making

Due to the known dangers of initiating positive pressure ventilation in a patient with decompensated right heart failure, *avoiding* intubation is obviously preferred

But....

Hypoxia and hypercarbia are known exacerbators of pulmonary hypertension and right heart strain

Is either high flow nasal cannula or non-invasive positive pressure ventilation appropriate for this patient?

# The Preparation

Always inform the team that hemodynamic collapse is likely, and extra help should be immediately available

Pre-induction arterial line is an absolute must

If time permits, central venous access should be obtained, or at least *trustworthy* IVs

- Administering vasopressors is almost a guarantee, both during induction and immediately after

Have pressors immediately available, even in-line

- **Recommend administering low doses of pressors or even starting infusions *prior* to induction (epinephrine, norepinephrine, vasopressin)**
- Along with “code” medications, many anesthesiologists prefer to have diluted epinephrine (ex. 10mcg/ml) available → this is often given concurrently with induction agent of choice

# Induction and Intubation

Most “hemodynamically stable” induction agents should be used:

- Heavier doses of fentanyl or other quick-acting opioid
- Etomidate
- Midazolam
- Use caution with Ketamine (known direct myocardial depressant) and Propofol (vasodilation and diminished preload)

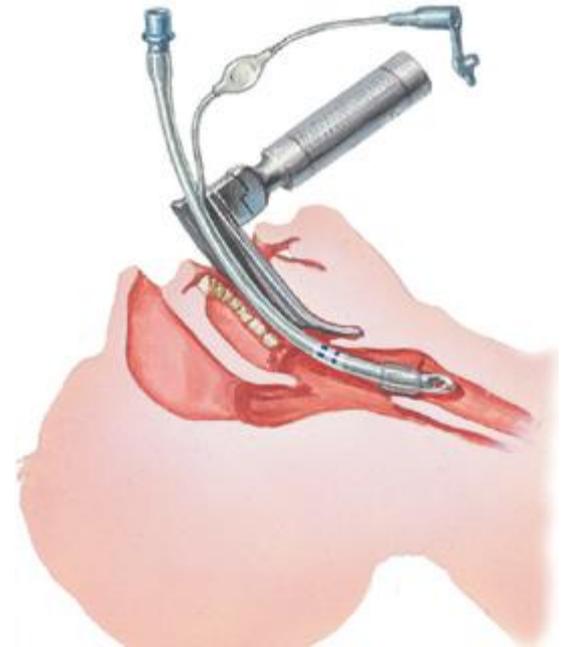


# Induction and Intubation

Strongly consider “awake” options: fentanyl +/- midazolam along with extensive oropharyngeal topicalization

- Lightly sedated video laryngoscopy is an excellent and well-tolerated method with good topicalization
- Most experienced provider is recommended

Time from induction to placement of ETT should be *as short as possible* to avoid hypoxia/hypercarbia (ie. rapid sequence induction)



# Post-intubation Management

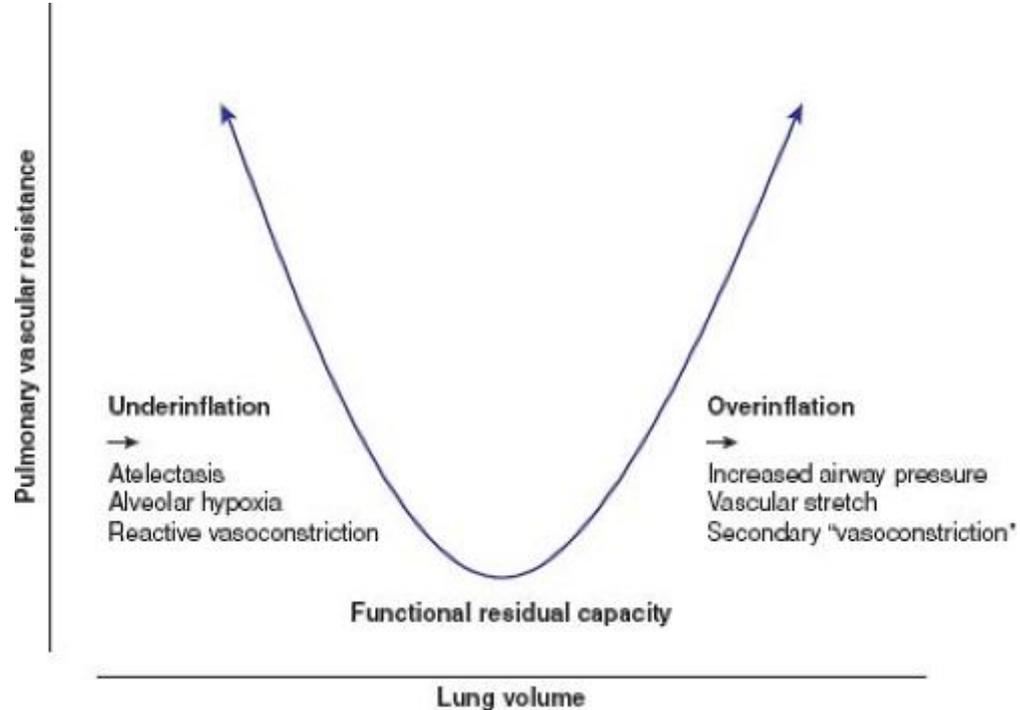
Important to avoid over-distention with large tidal volumes

Correct/prevent hypoxia with moderate to lower tidal volumes and higher respiratory rate

Higher than necessary tidal volumes could place extra strain on the right heart

Ventilator settings mimicking “lung protective strategy” for ARDS patients can be useful until further stabilized

Inform respiratory therapy or pharmacy early that inhaled epoprostenol or nitric oxide may be necessary



# Post-intubation Management

Avoid bronchoscopy unless absolutely indicated: coughing/gagging and resultant hypoxia could worsen condition

Ensure adequate sedation for above reasons

- Opioid infusions are useful to blunt the cough/gag reflex
- Dexmedetomidine is usually well tolerated in these patients (caution for bradycardia)

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