**RV Infarct**

**Key points:**
1. RV infarct should be considered in patients with hypotension, clear lungs, and elevated JVP
2. Look for ST elevation in inferior leads (II, III, aVF). Obtain right sided leads to look for ST elevation in RV4
3. RV involvement in inferior infarct is associated with higher morbidity and mortality
4. Maintain preload with IV fluids and avoid drugs that lower preload (nitrates, MSO4, diuretics)

Recall the vascular supply of the heart:

**Vascular Supply of RV**
- Lateral wall: RCA acute marginal branches
- Posterior wall and posterior interventricular septum: PDA (90% RCA, 10% LCX)
- Anterior wall: LAD branches and conus artery (50% RCA, 50% separate ostium)
- SA node: 60% RCA, 40% LCX
- AV node: PDA (90% RCA, 10% LCX)

**Vessel occlusions**
- RCA proximal to acute marginal branches
- LCX in pt with left dominant circulation
- LAD causing anterior RV infarct

**Associations**
- LV infarct: RV infarct in 14-84% of cases
- Isolated RV infarct: < 3% of cases (increased risk with RVH)
- Inferior infarct: only ~50% RV involvement (often despite prox RCA involvement)

**Diagnosis**
- Exam. Triad of hypotension, clear lung fields, increased JVP: specific, but < 25% sensitive
  - EKG: V4R ST elevation 1 mm 70% sensitive and 100% specific. Record early.
  - ECHO: RV dilation, RV wall asynergy, abnormal septal motion

**Complications:**
- Death: Odds ratio 3.2 (95% CI 2.4-4.1)
- Shock: Odds ratio of 3.2 (95% CI 2.4-3.5)
- High degree heart block: OR 3.4 (CI 2.7-4.2)
- Ventricular arrhythmias: OR 2.7 (CI 2.1-3.5)
- Atrial fibrillation
- Septal rupture
• RV thrombus
• Tricuspid Regurgitation
• Pericarditis
• R to L shunt through foramen ovale

Treatment
• Maintain RV preload
  • IVF
• Avoid nitrates, diuretics, morphine
• Maintain AV synchrony: pacing for heart block; cardiovert Afib
• Inotropic support: dobutamine if C.O. doesn’t improve with IVF
• Reduce RV afterload: If LV dysfunction, balloon pump or vasodilators
• Reperfuse: direct angioplasty or thrombolysis. Angioplasty shown to have improved morbidity and mortality in general but no specific data for RV infarcts.

Prognosis
• Inferior infarct complicated by RV infarct: in-hospital mortality may be as high as 31% vs 6% in pts without RV involvement.
• Every decrease of 5% of RV muscle function is associated with 16% increase in odds ratio of mortality
• Manifestations of RV dysfunction return to normal in the vast majority of survivors
• Conflicting data of effect on long term prognosis

References:
RV Infarction. NEJM. April 1994
Zornoff, et al. RV dysfunction and risk of heart failure and mortality after MI. J Am Coll Cardiol May 2002