CASE PRESENTATION
Case Presentation

- A 32 year old G1 presents with recurrent fevers to 102 F. The patient reports that she has had a mild cough and headache for the last few days
  - What is in your differential diagnosis?
Vitals
- T-101.4
- R-30
- P-115
- Sat-98%

Labs
- WBC-16,500 with 86% segs; 5% bands
- HGB/HCT-9.1/27.2
- BMP is normal.
Fetal Heart Rate Tracing
Labs

- Respiratory PCR
  - + for rhinovirus
  - + for influenza A
What therapy would you like to initiate?

- IVF
- Antivirals
  - Choice???
The patient’s temperature is 102. F. She states that she does not feel well even after tylenol. She states that she feels SOB.

What other information would you like now?
Vitals

- T-102F
- R-38
- P-131
- O2 Sat-88%
Fetal Heart Rate Tracing
• Despite therapy, the patient’s condition continues to worsen
  ○ What is your diagnosis?
  ○ What is your major concern?
  ○ What other information do you need?
ARDS
Definition

- Acute onset
- Bilateral infiltrates on CXR
- No evidence of intravascular volume overload
- Impaired oxygenation
  - Acute lung injury -- PaO2:FiO2 of less than or equal to 300
  - ARDS -- PaO2:FiO2 of less than or equal to 200
ARDS

Causes
- Aspiration
- Pneumonia
- Sepsis
- Shock
- Multiple Transfusions
- Hypertensive Disease
- Amniotic Fluid Embolism
Pathogenesis

- Endothelial and Epithelial Injury
- Neutrophil-Dependent Lung Injury
- Cytokines
- Ventilator-induced injury
ARDS
Clinical, Pathological and Radiographic Features

- **Acute Phase (Exudative)**
  - Rapid onset of pulmonary failure
  - CXR indistinguishable from cardiogenic pulmonary edema
  - Pathological findings include diffuse alveolar damage with inflammatory fluid in alveolar spaces and disruption of the alveolar endothelium
ARDS
Clinical, Pathological and Radiographic Features

- Chronic phase
  - Fibrosing alveolitis
  - Decreased pulmonary compliance
  - Pulmonary hypertension
  - CXR-subcutaneous emphysema and possible pneumothorax
ARDS
Clinical, Pathological and Radiographic Features

- Recovery phase
  - Gradual improvement in lung compliance
  - Improvement in hypoxemia
  - CXR-gradual change in previous findings, mage lag as much 3 days
Normal Alveolus

- Alveolar air space
- Type I cell
- Epithelial basement membrane
- Interstitium
- Type II cell
- Alveolar macrophage
- Surfactant layer

Injured Alveolus during the Acute Phase

- Protein-rich edema fluid
- Sloughing of bronchial epithelium
- Necrotic or apoptotic type I cell
- Inactivated surfactant
- Activated neutrophil
- Leukotrienes
- Oxidants
- PAF
- Proteases
- Cellular debris
- Fibrin
- TNF-α, IL-1
- Alveolar macrophage
- IL-6, IL-10
- TNF-α, IL-8
- MIF
- Neutrophil
- Platelets
- Swollen, injured endothelial cells
- Procollagen
- Gap formation
- IL-8
- Fibroblast
- Neutrophil
- Red cell
- Endothelial cell
- Endothelial basement membrane
- Capillary
What therapies would you like to initiate?

Is she a candidate for intubation?
  • If so, what are your ventilator settings

What is your plan for the fetus?
Clinical course

- Patient is intubated and sedated
  - Placed on SIMV
  - If she is 100 kg, calculate her TV
  - Rate-15
  - Her peak pressures are initially 40 mm/Hg
    - What can you do to help with this
  - PEEP is 8
  - FiO2 is weaned to 50%
    - ABG-7.3/22/100/-4
      - Do you need to make any adjustments?
Fetal heart tracing
Clinical Course

- HD#4, the patient is afebrile
  - ABG on 40% and PEEP of 5
    - 7.35/32/98/-2
  - What is you plan?
Clinical course

- Patient was extubated and placed on face mask
- She was discharged home undelivered
WE'RE BINGE-WATCHING A SHOW ABOUT SUPERHEROES...