Acute Respiratory Distress Syndrome (ARDS) is the most severe form of acute lung injury. It is characterized as noncardiogenic pulmonary edema and malfunction of the alveolar/capillary membrane. Major risk factors are sepsis, aspiration, oxygen toxicity, severe pancreatitis, pneumonia and trauma. The mortality rate is 30% to 50%.

ARDS

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L

How will your patient LOOK?

- The patient will be in severe respiratory distress of acute onset characterized by tachypnea, anxiety/restlessness deteriorating to fatigue, use of accessory muscles, crackles or coarse lung sounds
- Chext X-ray will show bilateral infiltrates (often referred to as "whiteout")
- P/F ratio < 200
- PAOP ≤ to 18
- Low PaO2, low PaCO2 due to hyperventilation that changes to high PaCO2 due to fatigue, pH will be low once respiratory acidosis develops

A

How will you ASSESS this patient?

- Assess RR, WOB, and use of accessory muscles
- Assess oxygen saturation via pulse oxymetry
- Monitor cardiac status; hypoxia can cause arrythmias
- Watch for complications such as DVT, pneumothorax and VAP
- Monitor mental status...patient may become confused, disoriented, lethargic or even combative as cerebral hypoxemia ensues
- Assess lung sounds; may start as fine crackles and deterorate to course lung sounds

T

What TESTS will be ordered?

- ABG...will show resipratory acidosis as the patient tires and PaCO2 rises
- Pan cultures since ARDS can be due to sepsis and aspiration pneumonia
- Chest X-ray will show whiteout; this may take up to 24 hours to appear
- Diagnostic testing of bronchial lavage washings to determine what, if any, infection is colonizing the lungs
- CT scan of the chest
- CBC, as patient may be septic

T

How will this condition be TREATED?

- Treat the underlying cause
- Mechanical ventilation using low tidal volumes to maintain plateau pressures below 30 cm H2O, or using pressure control mode to also keep plateau pressures below 30 cm H2O
- Inverse ratio ventilation may be needed in which the inspiratory phase is lengthened and the expiratory phase is shortened; this is extremely uncomfortable, so your patient will need to be adequately sedated
- High-frequency oscillatory ventilation may be used in patients who continue to be hypoxic. This mode delivers 300-3000 breaths per minute. Your patient must be chemically paralyzed when using this mode of ventilation.
- ECMO may be used in extremely dire situations
- Use PEEP to keep FiO2 levels as low as possible; note that high PEEP reduces venous return and thereby reduces cardiac output; vasopressors may be required to keep BP up
- Medications may include bronchodilators, paralytics, sedatives and analgesics
- Prone positioning may be utilized due to dependent lung areas being the most damaged; studies show it is most effective when used early;
- As patient improves, conduct daily spontaneous awakening and breathing trials
- Recovery from ARDS can be prolonged; patient may require tracheostomy
- Start nutrition early...get that OGT in there and get an X-ray to confirm placement ASAP!

E

How will you EDUCATE?

- Explain need for sedation and/or paralytics
- Educate pt/family about the need for frequent VAP prevention interventions including oral care and HOB positioning
- If patient is on intense mechanical ventilation therapy, explain the need and weaning process
- Keep family abreast of changes in patient condition; ARDS has a high mortality rate
- Provide emotional support to family

Source: Urden, L. D., Stacy, K. M., & Lough, M. E. (2010). Critical care nursing: diagnosis and management (6th ed.). St. Louis, Mo.: Mosby/Elsevier. Surviving Sepsis Campaign | Surviving Sepsis Campaign. (n.d.). Surviving Sepsis Campaign | Surviving Sepsis Campaign. Retrieved September 25, 2013, from http://survivingsepsis.org