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Acute Respiratory Distress Syndrome (ARDS)
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Introduction
Acute respiratory distress syndrome (ARDS) is a severe respiratory ailment that is a chief cause of mortality for patients in the Intensive Care Unit (ICU) (Gibbons, 2015). ARDS involves the rapid development of respiratory failure resulting from various diseases or injuries to the lungs. Because it includes both short and long-term complications, early detection of ARDS is beneficial to its devasting course.

Significance of ARDS
According to Modrykamien and Gupta (2015), there are approximately 150,000 cases of ARDS in the United States each year. As a nurse in the ICU typically develops in one to two patients every one to two months. With a mortality rate of 40–60% (Tadumen, Bibi, & Ibaikan, 2016), ARDS is a significant issue for any patient in the ICU. I choose ARDS bodily because myself as well as my colleagues in the ICU special find any interventions demonstrating the best evidence-based practice in caring for patients with this disease variable.

Pathophysiological Processes

**Signs and Symptoms**
- Non-cardiogenic pulmonary edema, dyspnea, hypoxemia (Chimomia, Coppelka, Freis, & Gott, 2016)
- Accessory muscle use, tachypnea, pallor, diaphoresis, decreased breath sounds (Carlucci, Graf, Simmons, & Corbridge, 2014)
- Respiratory alkalosis initially on arterial blood gas (Carlucci, Graf, Simmons, & Corbridge, 2014)
- As breathing increases, respiratory acidosis will ensue (Carlucci, Graf, Simmons, & Corbridge, 2014)

**Underlying Pathophysiology**
- Three phases of ARDS
- Acute exudative phase: Injury to the endothelium, composed to type I and type II cells, occurs (Carlucci et al., 2014).
- The injury results in spaces between endothelial cells which results in increased permeability and warrants alveolar flooding with protein rich fluid (Carlucci et al., 2014).
- According to (Carlucci et al., 2014), injury to the endothelium also causes damage to the tissue and muscular bed, which leads to a reduction in perfusion to the lungs and overall results in impaired gas exchange.
- Injury to type II cells loses surfactant production and impairs fluid transport, which causes alveoli to collapse, and impairs gas exchange (Carlucci et al., 2014).
- Neutrophils in the lungs release inflammatory substances, which increase the inflammatory response (Carlucci et al., 2014).
- Coagulation pathways are disrupted and micro thrombi form in the lungs (Carlucci et al., 2014).
- Fibroproliferative phase: Neutrophil-mediated inflammation and pulmonary edema lessen. A fibroproliferative process follows which causes a deposition of extracellular matrix, proliferating cells, and new blood vessels into the alveolar compartment (Carlucci et al., 2014).
- Resolution phase: The epithelium is repaired by type II cells, which proliferate and differentiate into type I cells (Carlucci et al., 2014).
- Neutrophil-mediated inflammation resolution is unclear, but apoptosis is thought to occur (Carlucci et al., 2014).
- Pulmonary edema moves from the alveoli into the interstitium and protein is removed through a variety of pathways (Carlucci et al., 2014).

**Implications for Nursing Care**
- Continuing research for treatments is warranted due to the high mortality of ARDS (Martini, Joseph, Mechl, & Hurford, 2016).
- Low tidal volume mechanical ventilation has shown promising results in the treatment of ARDS (Martini, Joseph, Mechl, & Hurford, 2016).
- Patients with severe ARDS in the early phase may benefit from prone positioning (Iress, 2015).
- Pulmonary edema moves from the alveoli into the interstitium and protein is removed through a variety of pathways (Carlucci et al., 2014).

**Significance of Pathophysiology**
ARDS presents acutely and progresses extremely fast (Drabhan & Castet, 2015). Recognition and treatment of the underlying cause can help prevent the damaging effects of ARDS (Drabhan & Castet, 2015). Despite numerous studies, no targeted therapies have been proven effective or effective as ARDS is characterized as a heterogeneous syndrome rather than a monolithically confirmed disease (Baron & Levy, 2016). ARDS continues to be hard to treat and will have significant mortality and mortality (Baron & Levy, 2016).

**Conclusion**
Many ICU nurses are challenged by patients suffering from ARDS. Often, these patients have various diseases and injuries which make it difficult to determine the appropriate therapy. Most therapies aim to enhance oxygenation some of these interventions include low tidal volume mechanical ventilation and placing the patient in a prone position. Recent assessment skills are crucial in detecting ARDS in its earliest stage to prevent its progression. Continued assessment of the patient is essential to ensure the appropriate nursing interventions are being utilized.

**References**
Baron, Rebecca M., & Levy, Bruce D. (2016). Recent advances in understanding and treating ARDS. F1000Research. DOI: 10.12688/ F1000research.6466.1