Fall 2014

Acute Respiratory Distress Syndrome

Jaqueline Yunker

Otterbein University, jacqueline.yunker@otterbein.edu

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Acute Respiratory Distress Syndrome

Acute Respiratory Distress Syndrome is a common complication resulting from injury to the alveolar-capillary membrane. This injury is caused by a systemic inflammatory response that involves other direct trauma to the lung such as smoke inhalation, drowning, or trauma such as sepsis. The inflammatory response that is involved in ARDS is similar to those seen in loco-alveolar-capillary beds and infiltration of the microvasculature caused by sepsis. Most cases occur with an simultaneous with approximately 150,000 deaths in the United States each year. The ARDS is present in up to 20% of patients with severe sepsis (American College of Chest Physicians, 2012). The ARDS is defined by the presence of acute respiratory distress with a peak inspiratory pressure of greater than 30 cm H2O and a ratio of PaO2/FiO2 of less than 200 for at least 12 hours (American College of Chest Physicians, 2012). The mortality rate for ARDS is high, with a reported mortality rate of 15-35% (Luce, 2013). Despite the high mortality rate of 60,000 deaths per year (Pipeling & Fan, 2010). Despite the very high mortality rate of 60,000 deaths per year, ARDS is a frequent cause of death in the United States and a significant contributor to healthcare costs. The inflammatory process from lung injury is associated with increased capillary permeability, allowing protein-rich fluid to accumulate into the alveolus spaces (American College of Chest Physicians, 2014). As a result, type 2 pneumocytes are damaged, reducing surfactant production and impairing fluid removal. Consequently, atelectasis, or collapsing of the alveoli, follows. With less alveolus to participate in gas exchange, there is a decrease in lung volume and dead space ventilation. Inadequate ventilation is insufficient to be created (Taylor, 2005). Lung ventilation is also diminished as a result of decreased surfactant. The need for ventilation increases to deliver taller volumes because of the decreased compliance, which further injure lung and continue the cycle. All these factors cause hypoxemia in the patient because of increased dead space ventilation (Luce, 2013).

While no one clear clinical or radiologic sign exists, the patient is often dyspneic, tachycardic, tachypneic, and hypotensive. The patient is often described as being hypoxic, unable to converse, and in pain. The patient is often described as being hypoxic, unable to converse, and in pain.

Signs and Symptoms

Presenting symptoms of ARDS usually occur within 24-48 hours after the injury. The presence of symptoms at the onset of severe symptoms can be even more rapid, within 24 hours. Patients generally present with dyspnea, tachypnea, and hypoxemia (Kane & Kurtz, 2013). They may also have other respiratory symptoms, such as coughing, chest congestion, or pain.