

The Th-17 Cytokine Response and Pulmonary Complications in the ICU, An Introduction

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It is well established that the development of pulmonary complications (ALI, ARDS) and multiple organ dysfunction syndrome (MODS) hampers the recovery of patients with severe traumatic injuries. Although a relationship between trauma and pulmonary dysfunction has been recognized clinically and experimentally, the pathogenesis of trauma-induced lung injury is only partially understood. Major trauma can induce remote organ injury at sites such as the lung, liver, and small intestines that appear to be primarily mediated by inflammatory cell influx and activation. The Th-17 response, an inflammatory response linked to a T-cell subset, is associated with neutrophil (an inflammatory cell) activation in the lung in particular. Moreover, IL-17, a primary Th-17 cytokine, appears to be central in the regulation of the pulmonary inflammatory responses associated with cystic fibrosis, severe asthma and COPD. In the proposed observational study, we will assess the role of the Th-17 inflammatory response on the development of pulmonary complications in trauma patients. We plan to enroll 25 subjects from the SICU who have severe traumatic injury and potential pulmonary complications. BAL fluid and blood will be obtained at the time of bronchoscopy. These samples will be analyzed for cellular phenotype and cytokine profile, looking specifically at the Th-17 response and its associations with complications, outcome, LOS, and other clinical endpoints.

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