

BIOLOGICAL MARKERS OF HOST AND BACTERIAL DEFENSE IN PEDIATRIC VENTILATOR-ASSOCIATED PNEUMONIA

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Synopsis:

Ventilator associated pneumonia contributes to serious mortality and morbidity in the intensive care unit in critically ill ICU patients needing mechanical ventilation. The diagnosis of ventilator associated pneumonia [VAP] is hampered by a lack of a gold standard and a single highly sensitive and specific tool for diagnosis.

We are conducting a prospective cohort study in Pediatric ICU patients receiving mechanical ventilation to ascertain if there are biologic markers found in lower respiratory tract fluids that can be used to establish a diagnosis of pneumonic infection versus bacterial colonization, leading to more expeditious and judicious antibiotic treatment and ultimately improve outcomes in critically ill children. We also wish to analyze if these biologic markers of bacterial infection correlate with certain clinically relevant outcomes in the setting of VAP such as length of ventilator dependence, length of PICU stay, and PICU mortality.

A procedure called a mini-bronchoalveolar lavage [mini-BAL] has been extensively studied and is currently being used in adult ICUs to obtain better lower respiratory tract secretion samples in the diagnosis of VAP. The mini-BAL entails placing a sterile telescoping catheter through the endotracheal tube and pushing distal to the endotracheal tube to sample lung secretions, thus decreasing sampling of endotracheal tube colonizing organisms. Mini-BAL samples have been shown in several adult studies to be better than endotracheal aspirates in differentiating true pulmonary infection versus endotracheal tube colonization. We plan to establish the reliability and safety of using a protocolized mini-BAL procedure to sample lower respiratory tract secretions in the pediatric population.

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