

Impact of Exogenous Surfactant Administration on Mortality in Children with Pediatric Acute Respiratory Distress Syndrome

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Abstract

Background: Pediatric acute respiratory distress syndrome (PARDS) remains a severe clinical condition, and despite advancements in diagnosis and treatment, mortality rates remain high according to the literature. The use of exogenous surfactant (ES) in children with PARDS is still considered an "off-label" therapeutic intervention.

Methods: A retrospective analysis of 284 children with PARDS of various etiologies hospitalized at the clinic between 2006 and 2024. All children were on mechanical ventilation, and the therapeutic strategy was chosen based on the etiology of PARDS. We divided the patient cohort into two groups based on the timing of ES administration. In the first group, surfactant was administered as a last therapeutic option. In the second group, surfactant was administered immediately after PARDS diagnosis. Mortality in children with PARDS was analyzed in both groups, as well as the causes of death (respiratory versus non-respiratory causes).

Results: In the first group, mortality was 26.8% (72% non-respiratory causes and 28% respiratory causes of death). In the second group, mortality was 8.7% (87% non-respiratory causes and 13% respiratory causes of death).

Conclusion: Mortality in children with PARDS was significantly lower in the group where ES (off-label) was administered immediately after the diagnosis of PARDS. Additionally, in both groups of children with PARDS, non-respiratory causes of death were predominant, indicating the positive therapeutic effect of ES in patients with PARDS. However, we acknowledge that more randomized controlled trials are needed in the area of PARDS to help establish international therapeutic guidelines.

Keywords: PARDS, exogenous surfactant, mortality