

## **Diagnostic Yield of Bronchoscopy in Children with Leukemia or post Hematopoietic Stem Cell Transplant**

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**Background:** The utilization and diagnostic yield of bronchoscopy with bronchoalveolar lavage (BAL) in immunocompromised children is not well understood. We aim to describe bronchoscopy use and complication rates and to investigate diagnostic yield.

**Project Methods:** This is a retrospective cohort study of 60 children with leukemia or post hematopoietic cell transplant who had a bronchoscopy with BAL at Riley Hospital for Children between 2017 and 2021. Existing datasets and the electronic medical record were used to collect data on demographics, transplant and diagnosis information, as well as respiratory and bronchoscopy data. Inferential statistics were used. Comparisons were done with regression analysis.

**Results:** Of the 60 bronchoscopies performed, 48 (80%) revealed diagnostic information: 41 (68%) identified a pathogen, 14 (23.3%) found significant secretions/mucus plugging, and 6 (10%) found pulmonary hemorrhage. BAL results led to a change in antimicrobial therapy in 27 (45%) cases. Blood cultures, respiratory viral panels and serum pathogen testing did not always correlate with BAL results. In patients with other infectious workup, 53% of bronchoscopies found a new infectious diagnosis. Of this cohort, 39 (65%) received supplemental oxygen for a median of 3 (IQR: 1-7) days prior to the bronchoscopy. Most patients, 58 (96.7%), had respiratory symptoms for a median of 5 (IQR: 2-18) days prior to bronchoscopy. Antibiotic use prior to bronchoscopy was common with use in 56 (93.3%) patients for a median length of 6 (IQR: 3-14) days. None of these factors were associated with the diagnostic yield. No patient required an escalation of respiratory support post-bronchoscopy. For the 25 (41.7%) children on mechanical ventilation when the bronchoscopy was performed, there was no difference in ventilator settings pre and post-bronchoscopy.

**Conclusion and Implications:** Bronchoscopies with BAL are useful, safe, and important in the diagnostic management of pulmonary complications in this cohort of children.