

Complications Following Therapeutic Bronchoscopy for Malignant Central Airway Obstruction: Results of the AQUiRE Registry

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Abstract:

Background: There are significant variations in how therapeutic bronchoscopy for malignant airway obstruction is performed. There are relatively few studies comparing how these different approaches impact the incidence of complications.

Methods: We used the AQUiRE registry to conduct a multicenter study of patients undergoing therapeutic bronchoscopy for malignant central airway obstruction. The primary outcome was the incidence of complications. Secondary outcomes were incidence of bleeding, hypoxemia, respiratory failure, adverse events, escalation in level of care, and 30-day mortality.

Results: Fifteen centers performed 1,115 procedures on 947 patients. There were significant differences between centers in the type of anesthesia used (moderate vs. deep/general anesthesia, $p < 0.001$), rigid bronchoscopy utilization ($p < 0.001$), type of ventilation (jet vs. volume cycled, $p < 0.001$), and the frequency of stent utilization ($p < 0.001$). The overall complication rate was 3.9%, but there was significant variation between centers (range 0.9% to 11.7%, $p = 0.002$). Risk factors for complications included urgent and emergent procedures, ASA > 3, redotherapeutic

bronchoscopies, and moderate sedation. The 30-day mortality rate was 14.8%; rates varied between centers (range 7.7% to 20.2%, $p = 0.02$). Risk factors for 30-day mortality included Zubrod > 1, ASA > 3, intrinsic or mixed obstruction, and stent placement.

Conclusions: Utilization of moderate sedation and stents varies significantly between centers. These factors are associated with increased complications and 30-day mortality, respectively.