MANAGEMENT OF LIFE-THREATENING HEMOPTYSIS



Significant airway obstruction, significant abnormal gas exchange, or hemodynamic instability associated with hemoptysis or approximately 150 mL of blood expectorated in a 24-hour period (roughly a half cup of blood in 24 hours) or bleeding at a rate ≥100 mL/hour.

Directed history - Focused examination - Laboratory tests - CXR - ICU admission

RESUSCITATION & STABILIZATION

- Secure the airway (eg, with a wide-bore 8 mm endotracheal tube).
- Position the patient in lateral decubitus with bleeding side down.
- Volume resuscitation as required.
- Reverse bleeding disorders, if present: fresh frozen plasma to reverse warfarin, specific reversal agent for DOACs, platelet transfusion for <50 × 10³ platelets/microL or for platelet defects due to uremia or antiplatelet agents (eg, aspirin, clopidogrel), or desmopressin for platelet dysfunction in uremia or aspirin use.

BLEEDING LOCALIZATION & CONTROL

- Bronchoscopy (diagnostic: localization of bleeding source), and therapeutic (eg, iced saline, topical medications with epinephrine [1:20,000] or vasopressin, bronchial balloon or blockade devices, or thermal ablation).
- Computed tomography (CT) for patients who are stable.
- Early assessment for the need for surgery (bleeding from a tracheoinnominate artery fistula, ruptured pulmonary artery, refractory bleeding from an aspergilloma, or chest trauma).

Other Supportive **Initial Life-saving** & Treatment Supportive Measures Measures Initial **Further** Investigations Control & Control Measures Measures Detailed Diagnostic Investigations

INTERMITTENT OR SLOWED BLEEDING

- Repeat bronchoscopy (for reinspection and acquisition of cultures, cytology, and biopsy).
- Echocardiography.
- CT pulmonary angiography.
- Arteriography (mainly bronchial and possibly pulmonary or systemic arteriography).
- Serology, urinalysis and/or renal biopsy, and toxicity screen.
- Antibiotic therapy and inhaled bronchodilator therapy as indicated.
- Definitive therapy of the underlying cause.

REFRACTORY BLEEDING

- Surgery (typically a lobectomy)
- For patients who are not surgical candidates, repeating non-surgical options
- Vasopressors for hypotension that is refractory to volume resuscitation.
- · Inhaled recombinant factor VIIa
- Off-label tranexamic acid is generally, only used if other initial therapies have failed).
- Transfusion of packed red cells as needed.

CONTINUED OR RECURRENT BLEEDING

- Additional airway protection options may be necessary (eg, single lung ventilation or rarely double-lumen endotracheal intubation).
- Arteriography (typically bronchial arteriography) for identifying and embolizing the culprit lesion.
- Local thermal ablation (or radiation) for patients who have an identified source of bleeding on bronchoscopy.
- Thoracic surgical re-consultation.