

A Case Series of Emergency Medicine Performed Bronchoscopy: A Single Centre Experience in A Tertiary Care Hospital

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Abstract

Emergency bronchoscopy is relatively new and not a routine procedure in ED (Singh, 2023). The objective is to attain airway assessment, adequate oxygenation, and ventilation, by performing bronchoscopy in mechanically ventilated patients (Sachdev *et al.*, 2022). Its use is significantly being advocated in the setting of critical emergency care (Ho *et al.*, 2022). In this article we discuss the annals of bronchoscopes over a year in a tertiary care hospital in the Klang valley and its data interpretation.

Keywords: Bronchoscopy; Oxygenation; Mechanically; Emergency

Methodology

Emergency physicians who have been trained in emergency bronchoscopy and who have been certified performed bronchoscopy in the critically ill patients through a one-year period in 2023. Data was collected for all the cases who had emergency bronchoscopy performed on them via a standardized data collection sheet to minimize bias. The data from all the cases was then analyzed in each of its components which includes safety profiles and rate of complications, outcome of patient post bronchoscopy, most common findings recorded in emergency bronchoscopy, medications commonly used and the indications to perform a bronchoscopy.

Results and Discussions

Total of 15 patients underwent bronchoscopy in Emergency department, Hospital Selayang by certified emergency physicians in the above-mentioned period.

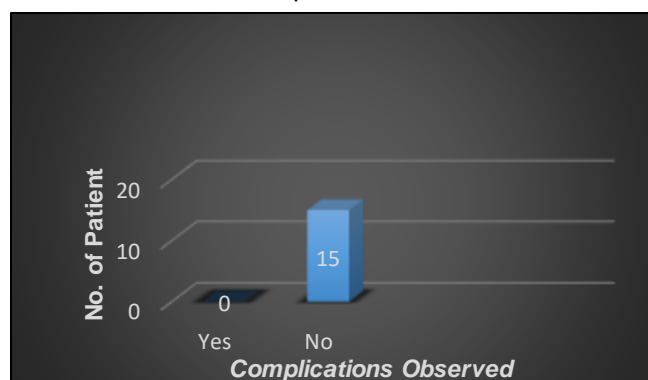


Figure 1: Complications Observed in Emergency Bronchoscopy

In the total of 15 patients, who underwent procedure in our setting, none of them had any complications. The expected small risks of complications are bleeding, desaturation, arrhythmias and pneumothorax can happen for various reasons, which can be avoided and tackled by expertise. Thus, making bronchoscopy relatively safe (Kops *et al.*, 2023).

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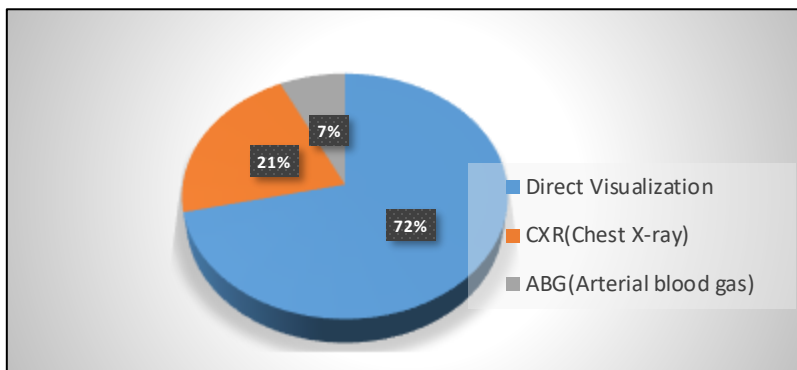


Figure 2: Methods of Outcome Analysis

Three types of methods were used to measure the outcome of our patients, direct visualization from the bronchoscopy, CXR and ABG. As our collective data results shows 72% (10) had direct visualization from bronchoscopy to measure the outcome and 21% (4) had CXR done to measure the outcomes and 7% (1) had ABG findings to analyze the outcome. The best way to evaluate the outcome is not via CXR/ABG but by direct bronchoscopy post procedure itself. And almost all the patients displayed improvement in ventilation and oxygenation drastically.

In the 15 patients, the most common findings documented were mucous plugs and secretions accounting for 87 %, (13) and 7% (1) noted to have pulmonary hemorrhage, all of which can be easily treated in ED by removing the plug, suction or by bronchial washing (Cheng & Goldfarb, 2023).

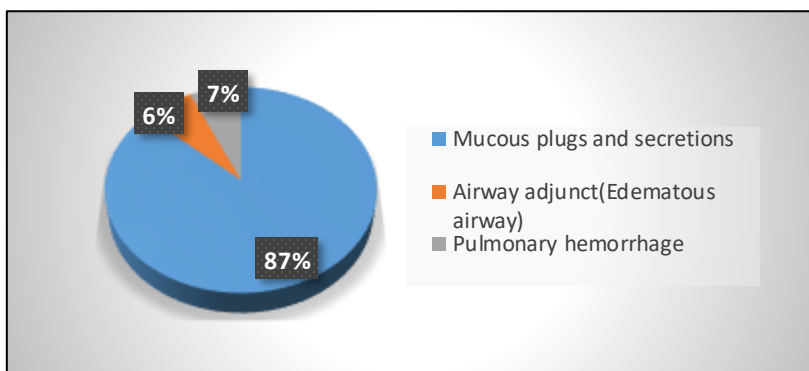


Figure 3: Common Emergency Bronchoscopy Findings

Pre procedure medications are rarely needed for bronchoscope. Among the 15 patients, 54% (8) required low doses of rocuronium as pre procedure medication, 13% (2) requiring low dose of rocuronium and midazolam, which are relatively safe and the remaining 33 % (5) not requiring any medications.

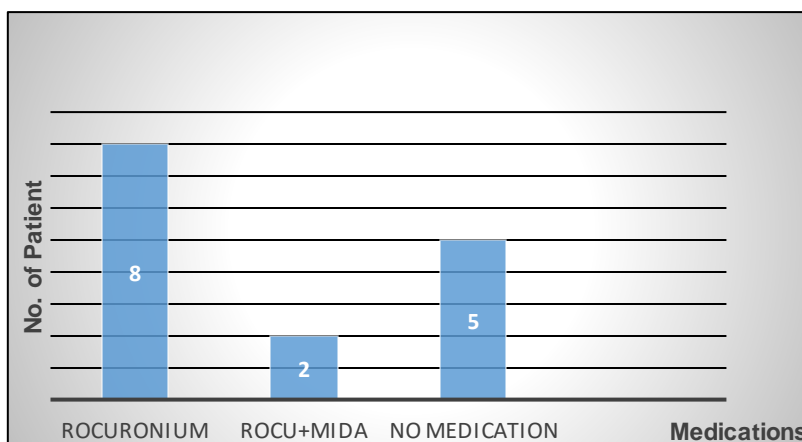


Figure 4: Medications Pre-Bronchoscopy

Patient's diagnosis to perform bronchoscopy varies largely and its evidence of its wide use in the EDar. In the 15 patients, most common indication was both diagnostic and therapeutic, 53% (8) for mucus

plug clearance, 40% (7) suction therapy for lobar collapse/bronchial washing and in 1 polytrauma patient, it was used as an adjunct for difficult airway accounting for 7%.

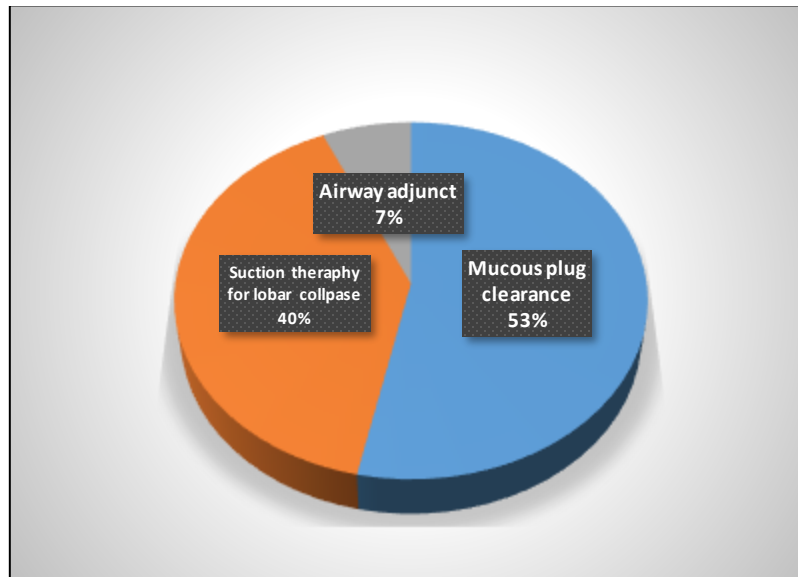


Figure 5: Common Indications of Emergency Bronchoscopy

Conclusion

In tertiary care settings, emergency physicians can safely and effectively use bronchoscopy to diagnose and treat critically ill patients. Thus, becoming an important therapeutic and diagnostic tool for emergency airway management.

Limitations

Limited trained personnel, and the lack of critical care unit in Emergency department are some of our limitations. Further studies are warranted to establish bronchoscopy as a reliable and safe strategy for routine use in emergency department.

Conflict of Interest

The authors declare that they have no competing interests.

Acknowledgement

The authors would like to thank the Ipoh Emergency Critical Care society for initiating training in emergency bronchoscopy for emergency physicians that has led to this procedure being done routinely in the emergency departments all across Malaysia.

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