

# A survey of respiratory complications secondary to postoperative residual curarization in thoracic surgical patients

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## Introduction

- Respiratory complications secondary to postoperative residual curarization (PORC) remain a problem despite the use of intermediate acting neuromuscular blockers (NMBs)<sup>1-2</sup>. This preventable complication has an impact on both patient safety and cost<sup>2</sup>. Thoracic surgical patients pose a specific challenge as they often present for short procedures that require instrumentation of the tracheo-bronchial tree<sup>3</sup>.
- Our aim was to assess the different anaesthetic methods used and determine the incidence of respiratory complications related to PORC in this population.

## Methods

- We conducted a prospective survey of thoracic surgical cases in the month of July 2011 at the University Hospital of South Manchester.
- PORC was defined clinically as difficulty with protruding the tongue, or sustaining a head lift for >5s, along with any respiratory compromise defined as difficulty breathing with SpO<sub>2</sub> <93% on FiO<sub>2</sub> >0.5.
- Qualitatively, a train of four (TOF) ratio cut-off of <0.9 was used by either visual or tactile assessment
- The need for re-intubation, a further dose of NMB reversal, or unplanned admission to ICU was recorded.



- Of the 39 (87%) patients in whom use of reversal with neostigmine was recorded, 16 (41%) did not receive any reversal agent. In four patients (10%), the dose of reversal was inadequate (based on 25 micrograms/kg neostigmine).
- Three patients (7%) had evidence of respiratory complications secondary to PORC. The most extreme case was a patient that required the insertion of a laryngeal mask airway. One had vecuronium with no use of reversal. The other two had atracurium with reversal that was administered too early.

Figure 2:  
Reversal agent given?

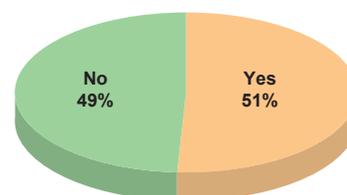
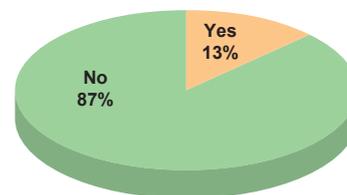


Figure 3:  
Neuromuscular blockade monitoring

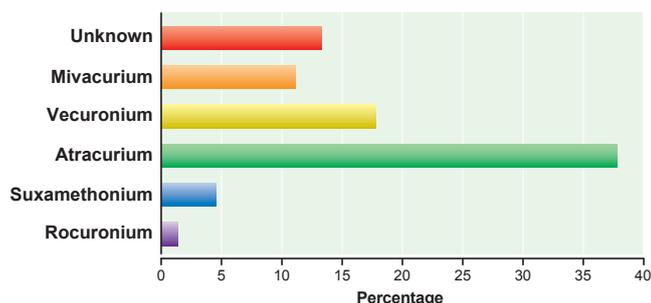


## Results

- A total of 49 questionnaires were completed (50% of all cases for the month of July 2011). Of these, 45 (91%) patients received muscle relaxants.
- A total of 16 patients (35%) received atracurium. In two patients (4%), suxamethonium was used to facilitate diagnostic rigid bronchoscopy. Five (11%), seven (16%), and eight (18%) patients received mivacurium, rocuronium, and vecuronium, respectively. Neuromuscular junction monitoring was used in only eight (18%) patients.

Figure 1:

Choice of muscle relaxant used



## Discussion

- Anaesthetic management of thoracic surgical patients is fraught with difficulty. PORC is a preventable problem in this population.
- In our institution, there is a wide variation in the anaesthetic management of these patients. Atracurium is commonly used. Suxamethonium is still used to facilitate rigid bronchoscopy in a minority of patients.
- The use of neuromuscular monitoring remains low, although current evidence has not shown that routine use of these monitors prevents PORC<sup>1</sup>.

## References

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