

Introduction

Residual neuromuscular blockade (NMB) poses significant challenges in medical practice due to its prevalence and associated complications. Current clinical tests for NMB recovery demonstrate limited effectiveness, highlighting the need for improved monitoring. To address this, an evaluation of NMB monitoring practices was conducted at Royal Free Hospital, aiming to compare current practices in NMB monitoring with established standards as outlined in the 2021 AAGBI guidelines.

AIM Statement

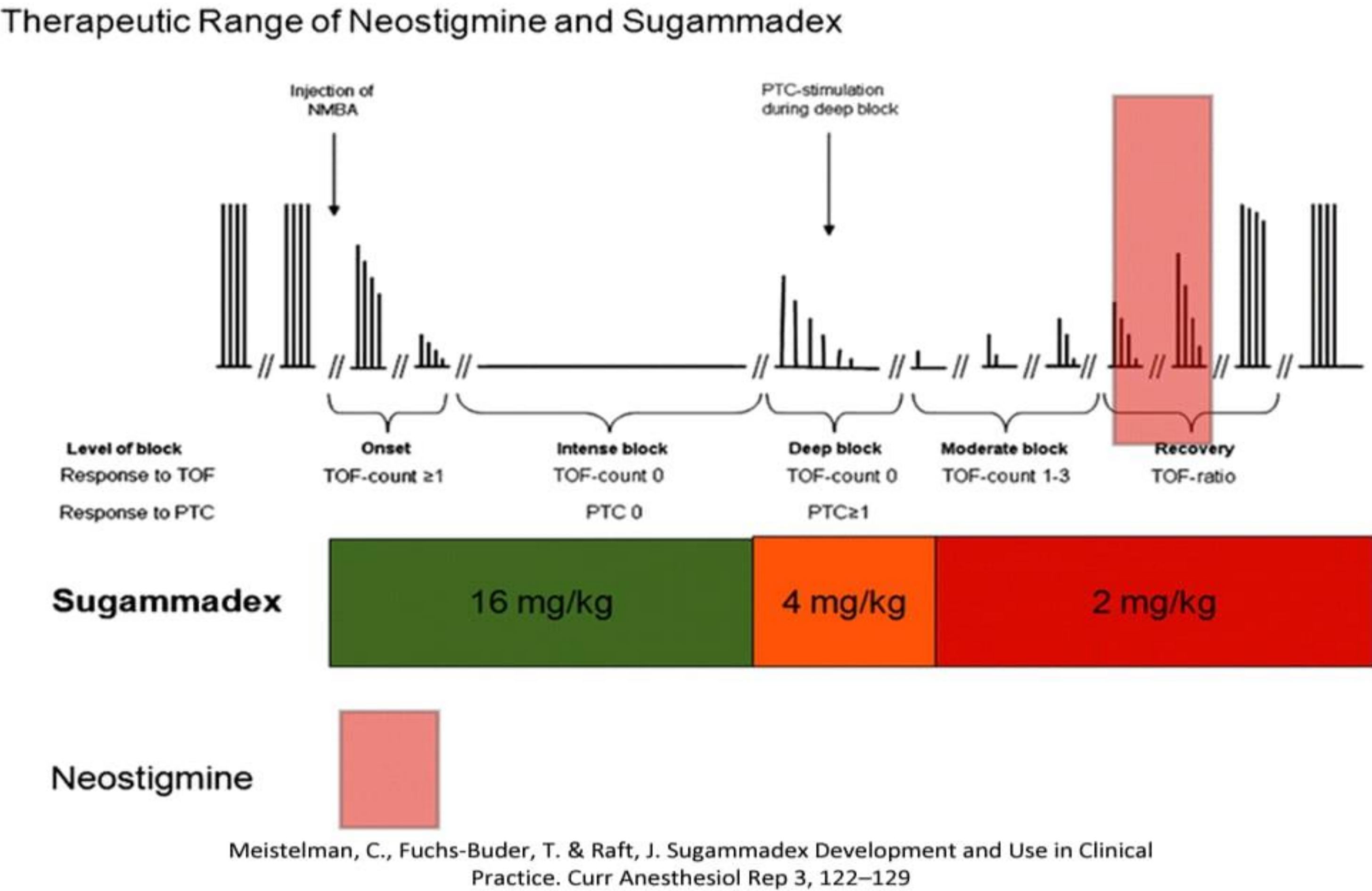
- 1. Assessment of TOF monitoring utilisation and documentation
- 2. Evaluation of type of NMB reversal agents used
- 3. Review of any airway or breathing complication in the postoperative period

Benchmark Data

In November 2022, an audit assessed TOF monitoring documentation in cases requiring NMB over three days. Out of 73 cases, only qualitative TOF monitoring was documented in 6.8%. Following the presentation of these findings, quantitative TOF monitoring was integrated into clinical practice. A follow-up audit in October 2023, revealed an increase in compliance to 12.0% across 67 cases, with 87.5% using quantitative TOF. Notably, there were no post-operative airway complications in either audit cycle.

NEUROMUSCULAR BLOCKADE REVERSAL CARD	
Train of Four Monitoring	Reversal agents and dose after Rocuronium (Vecuronium)
TOF R> 0.9 (using quantitative monitor)	Reversal not required
4 twitches	Neostigmine 30 mcg/kg (max 5mg) Sugammadex* 2 mg/kg**
2 to 3 twitches	Neostigmine 60 mcg/kg (max 5mg) Sugammadex 2 mg/kg**
1 twitch	Sugammadex 4 mg/kg
Post tetanic twitches only	Sugammadex 4 mg/kg
No post tetanic twitches after giving RSI-dose rocuronium	Sugammadex 16 mg/kg

*Neostigmine and Sugammadex doses are based on adjusted body weight
** Sugammadex requires counselling of women of childbearing age regarding non-hormonal contraception for 7 days



Intervention Description

To improve compliance with AAGBI guidance on neuromuscular monitoring, several interventions were implemented:

1. Introduction of quantitative NMB monitoring at RFH and automatic data integration into the anaesthesia module.
2. Suggested use of a NMB reversal card to guide antagonism based on quantitative TOF values.
3. Education and training initiatives on quantitative NMB monitoring.
4. Regular audits and feedback mechanisms to maintain continuous quality improvement

Post Intervention Results/Outcomes

Our findings show improved use and documentation of NMB monitoring after integrating quantitative TOF monitoring. However, challenges like equipment availability and guideline adherence remain. Proposed measures, such as distributing NMB reversal cards and education on quantitative NMB monitoring will aim to further enhance patient safety and optimise anaesthesia management in cases where muscle relaxants are used.

References

1. AAGBI Recommendations for standards of monitoring during anaesthesia and recovery 2021
2. Fuchs-Buder T, Romero CS, Lewald H, et al. Peri-operative management of neuromuscular blockade: A guideline from the European Society of Anaesthesiology and Intensive Care. Eur J Anaesthesiol. 2022

Figure1