



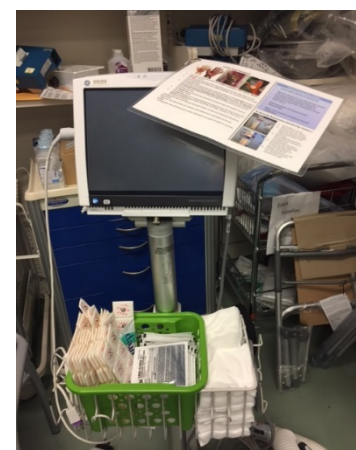
A Twitch In Time: Subjective vs. Objective Intraoperative Neuromuscular Blockade Monitoring

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SIGNIFICANCE

- Patients who receive a nondepolarizing neuromuscular blocker intraoperatively are at an increased risk for critical post anesthesia events
- Residual neuromuscular blockade (RNMB) can be misdiagnosed as opioid overdose, or simply undetected because nurses assume postoperative weakness is a normal post anesthetic condition, and subsequently do not seek additional medical attention
- There are many overt and subclinical complications associated with RNMB, including (but not limited to): double vision, impaired hypoxic ventilatory response, upper airway obstruction, impaired ability to swallow and pharyngeal muscle coordination, reduced upper esophageal muscle tone, dysarthria and flat affect
- No practice guidelines currently exist to govern early detection and intervention



PURPOSE

To assess the implementation of the Guideline for Prevention of Post-Operative Residual Paralysis (GPPRP), in determining if patients admitted to the Post Anesthesia Care Unit (PACU) arrive with RNMB

GUIDELINES

- Developed Guideline for Prevention of Post-Operative Residual Paralysis
- The GPPRP form was completed upon admission to the PACU and an EMG TOF was performed with the GE Healthcare Carescape Monitor B450 by the nurse
- Patients that fell below criteria of <0.90 were referred to the anesthesiologist for treatment

METHODOLOGY

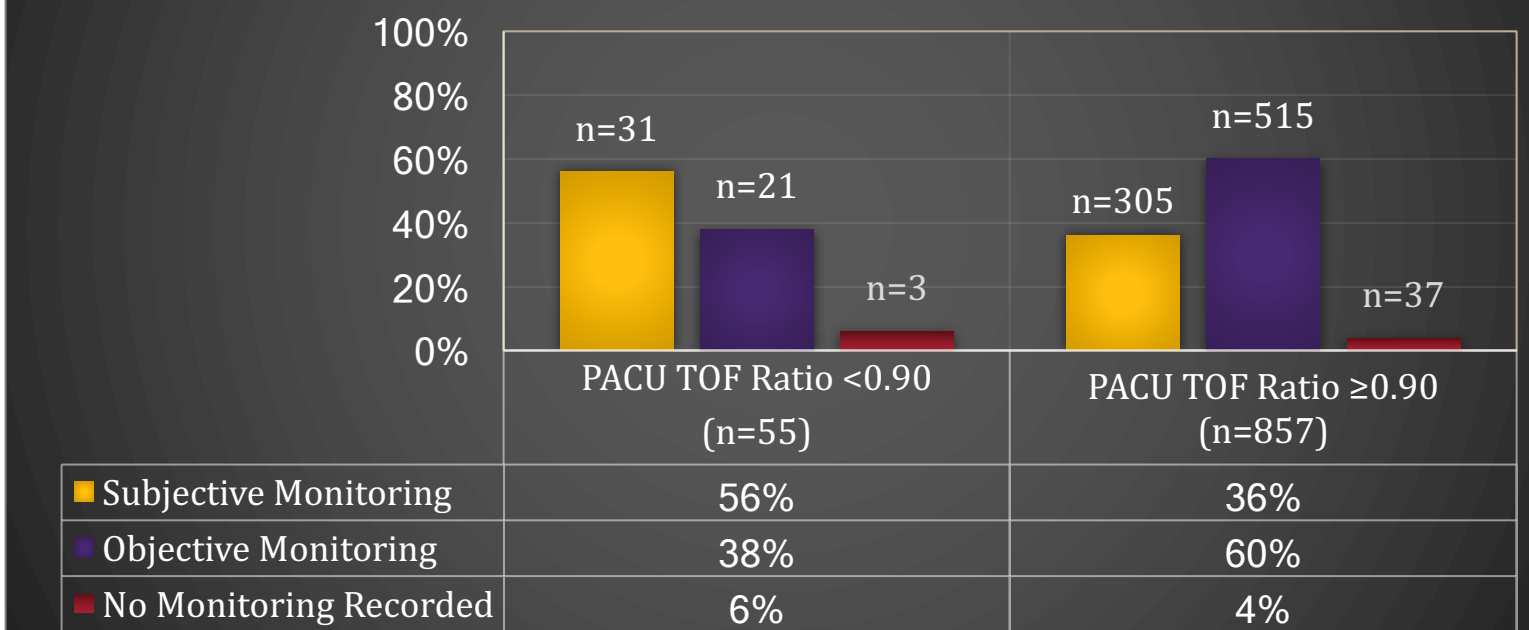
- Eight PACU nurses were identified as super users of the guideline and one as the liaison
- Educational sessions for the super users and PACU nursing staff occurred for three consecutive weeks prior to start of implementation
- Data collection occurred over a seven week period

Selected statistics on the 5 patients that required pharmacological intervention in PACU for residual neuromuscular blockade, manifesting as a TOF ratio of <0.90

	Neuromuscular Blocker	Reversal	Monitoring Type	TOF PACU	Intervention/Outcome
Case 1	Cisatracurium	Neostigmine 3mg	Subjective	77%	Neostigmine 2mg/ >0.90 in 10min
Case 2	Rocuronium	None	Subjective	67%	Sugammadex 100mg/ >0.90 in 20min
Case 3	Vecuronium	Neostigmine	Subjective	81%	Sugammadex 100mg/ >0.90 in 12min
Case 4	Vecuronium	None	Subjective	88%	Neostigmine 3mg/ >0.90 in 8min
Case 5	Rocuronium	Neostigmine and Sugammadex	Subjective	73%	Sugammadex 100mg/No TOF ratio documented

FINDINGS

Intraoperative Monitoring of Neuromuscular Blockade



DISCUSSION

- National standards for neuromuscular recovery is a TOF ratio ≥ 0.90 using an objective monitor
- Objective monitors were used in 60.1% of patients with a TOF ratio ≥ 0.90
- The overall incidence of RNMB occurred in approximately 6% in the PACU
- 55 patients were admitted to PACU with RNMB
- Subjective neuromuscular monitoring is associated with poorer perioperative outcomes, and was used 56.4% of the time in patients exhibiting RNMB
- PACU assessment of RNMB may improve patient outcomes

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