

## **SUGAMMADEX: DO THE BENEFITS OUTWEIGH THE COST?**

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**Identification of the problem- Overview:** Sugammadex is indicated for the reversal of moderate or deep neuromuscular blockade (NMB) by nondepolarizing neuromuscular blocker, a muscle relaxant. It can help reduce the risk of multiple side effects of general anesthesia and is useful for patients who have contraindications to neostigmine or succinylcholine.

Administration in our 176-bed community hospital was considering adding sugammadex to the formulary for use in our post-anesthesia care unit, which sees approximately 5,500 surgical patients per year. We sought to determine how sugammadex would affect the timing of nondepolarizing neuromuscular blockade in post-anesthesia patients when compared with neostigmine, which is our standard of care.

**EP Question/Purpose:** Is the return of train-of-four (TOF) achieved faster after NMB induced by a nondepolarizing neuromuscular blocker with postoperative administration of sugammadex or neostigmine?

**Methods:** We conducted a literature review using CINAHL and MEDLINE and the keywords "neostigmine" AND "sugammadex." We limited our search to articles in English, adults and those written between 2010- 2016. Our initial search yielded 294 articles, which we then narrowed down to 26 using a title and abstract review. Full-text analysis of the remaining articles yielded 9 that fit our criteria. We used the John Hopkins EBP Research Evidence Appraisal Tool to evaluate each article. Two articles were level 1, one article was level 2, four articles were level 3 and two articles were level 5.

**Significance of Findings/Outcomes:** Sugammadex as a reversal for NMB achieves TOF up to 8.1 times faster compared with neostigmine, and in as few as 1.5 minutes. This can lead to potential reductions in length of stay, adverse effects, staffing needs, and mortality rates, and improved patient satisfaction for perioperative adult patients.

**Implications for perianesthesia nurses and future research:** We recommend the use of sugammadex as a second line treatment for reversal of NMB and first line for those unable to tolerate neostigmine or requiring emergency airway management. The high cost of sugammadex may have prevented its introduction at our facility in the past. It has been added to the formulary as a result of this project. Future research should include nursing perspectives and practices associated with the use of this medication.