

Characterization of Sugammadex Utilization at an Academic Pediatric Hospital

Background: Sugammadex use in pediatric surgery has recently increased, but criteria and circumstances for utilization are not standardized and appear to be provider specific. The objective of this study is to describe the utilization and dosing of sugammadex at an academic pediatric hospital and set the stage for an efficacy and cost comparison with an alternative reversal agent in pediatric surgical patients.

Methods: A retrospective chart review of patients receiving sugammadex for the reversal of neuromuscular blockade from April 1 to June 30, 2019 will be completed to characterize the usage of sugammadex. The Children's Mercy Institutional Review Board has approved this study. Collected data will include: patient age, sex, weight, procedure, procedure duration, rocuronium and sugammadex doses and administration times, Academy of Anesthesiologists physical status classification, train-of-four count prior to sugammadex administration, anesthesiology team members, any respiratory past medical history, pre-operative human chorionic gonadotropin test, hormonal contraception prescriptions, and length of stay. All data will be documented without patient identifiers. Collected data will be used to identify trends in sugammadex usage and dosing at Children's Mercy Kansas City.

Results: Sugammadex was administered to 1032 patients in April through June of 2019; the time frame was narrowed to June of 2019, where 305 patients underwent 312 procedures. Patients on average were 8.3 ± 5.6 years old and 67.2% male. Male patients between the age of 0-13 years accounted for 40% of male patients. In contrast, 25% of female patients were in the same age group. Orthopedic procedures (23%) were the most common procedure group and appendectomies (19%) were the most common procedure. Sugammadex was most frequently dosed at 2 mg/kg (48.5%), followed by 4 mg/kg (34.8%). It was administered 57 ± 24 minutes on average after the previous rocuronium dose. Nearly all procedures had a documented train-of-four but only 29% of procedures had one documented within 20 minutes of sugammadex administration. Of the procedures with train-of-four documentation prior to administration, sugammadex dosing correlated with the depth of neuromuscular blockade.

Conclusions: Current sugammadex utilization and dosing at Children's Mercy Kansas City is far from standardized but there was a trend of avoidance in females of childbearing potential. Providers who monitored train-of-four prior to sugammadex administration typically followed dosing recommendations.