The Utility of Sugammadex in Ultra Fast-Track Extubation After Pediatric Cardiac Surgery: Preliminary Results

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BACKGROUND:
Sugammadex reverses neuromuscular blockade by chemical encapsulation of rocuronium. It avoids the cardiovascular side effects of the anticholinesterase agents, which could be especially harmful in pediatric cardiac patients. This observational study explored efficacy of sugammadex in children undergoing cardiac surgery under bypass.

METHODS:
We studied 8 patients (American Society of Anesthesiologists class 2-4), undergoing scheduled Fast Track pediatric cardiac surgery under cardiopulmonary by-pass, median age: 48 months (11-156 months), median weight: 16.5 Kg (7-63 Kg). The procedures included: 4 surgical closure of septal defects, 1 Fontan procedure, 1 pulmonar valvuloplasty and 2 aortic valvuloplasty.

Induction was performed with midazolam 0.3 mg/Kg or propofol 2 mg/Kg, 5-10 mcg/Kg fentanyl and 0.6 mg/kg rocuronium. General anesthesiawas maintained with sevoflurane CAM 0.8, remifentanil 0.20 mcg/Kg/h and rocuronium 0.4 mg/Kg/h. The perfusions were stopped at the end of the bypass. After the skin closure neuromuscular monitoring was performed using acceleromyography. If TOF<75% they received a first dose of 2.0 mg/kg sugammadex, which could be repeated until the train-of-four (TOF) ratio was 0.9. Our objectives were to analyze time from sugammadex administration to recovery of the TOF ratio to 0.9, time until extubation and operating room exit time.

RESULTS:
- The median initial TOF was 0.22 (0.10-0.37). After one minute of the administration of a first dose of 2 mg/Kg the median TOF was 0.66 (0.10-0.37). A second dose of 2 mg/Kg was necessary in 7/8 patients. After five minutes all the patients had a TOF>0.9.

- Median time since sugammadex administration until extubation was: 17 minutes (16-25 min). After sugammadex administration median operating room exit time was:28 minutes (26-35 min).

Sugammadex was well tolerated. We didnâ€™t need to reintubate any patient. No reoccurrence of blockade or inadequate reversal were observed. In one case (1 yr) there was a laryngospasm that
revert with the use of CPAP and a bolus of 10mg of propofol. There were no significant QT prolongations, or other EKG abnormalities.

CONCLUSIONS:

In our experience Sugammadex was safely used in children after cardiac surgery. It’s effectiveness and rapid recovery times contributed to an early extubation in our patients.

REFERENCES


2. Bridion (sugammadex) [prescribing information]. Whitehouse Station, NJ; Merck & Co, Inc: September 2016