Sugammadex as a Reversal Strategy in a Patient with Masthenia Gravis

Primary Author: Jerrod McCarty, M.D.
University of Kentucky

Co-Authors: Mike Cranney DO; Annette Rebel, MD

Myasthenia gravis (MG) is an autoimmune disorder involving the immunologic destruction of the postsynaptic nicotinic acetylcholine receptors at the neuromuscular junction. There are multiple anesthetic concerns in patients with MG, particularly those interactions among the disease, the disease treatment, neuromuscular blocking agents (NMBAs) and NMBA reversal. Even small doses of NMBAs can produce profound neuromuscular blockade (NMB) and prolonged spontaneous recovery.1 It is therefore recommended to reverse NMB at the end of surgery. The literature regarding a reversal strategy with sugammadex in patients with MG is limited to case reports and a few studies. This literature suggest that this reversal strategy adds many aspects of safety, reduces the need for postoperative mechanical ventilation, and may prevent postoperative recurarization.2 We present a case in which we used rocuronium and sugammadex with objective NMB monitoring in the anesthetic management of a patient with MG undergoing a whipple procedure.

Our patient was an 82-year-old, 84kg male scheduled for a whipple procedure who had had MG for 4 years. He had an Osserman and Genkins3 classification score of IIa, and had been started on azathioprine without anticholinesterase inhibitor. Azathioprine was continued during the perioperative period. After induction of anesthesia with lidocaine, sufentanyl, ketamine and Propofol, a baseline ToF ratio of 118% was obtained. NMB was then induced with 40mg of Rocuronium. Within 60 seconds a ToF of 0 was obtain and the trachea was intubated. 150 minutes after inducing NMB the ToF ratio had recovered to 65% and an additional 10mg of rocuronium was given after discussion with the surgeon regarding the remaining anticipated surgical duration. Again, a ToF ratio of 0 was obtained within 60 seconds of the maintenance dose. Subsequently the procedure was aborted as the patient’s tumor was deemed non-resectable. 225 minutes after the maintenance dose, the ToF ratio had recovered to 97%. 1mg/kg of sugammadex was administered and 120 seconds later a ToF ratio of 120% was obtained. The patient was extubated awake without any complications. An ABG on 4L NC was obtained in the PACU and consisted of pH, 7.42; PaCO2, 34mm Hg; and PaO2, 115mm Hg. The recovery from anesthesia was uneventful and no sign of residual NMB or recurarization was observed. This case adds to the growing evidence that rocuronium and sugammadex with objective NMB monitoring can be safely and effectively used in the anesthetic management of patient with MG. This strategy may reduce the need for postoperative mechanical ventilation and the risk of postoperative recurarization.

References