Perioperative neuromuscular block. A guideline from the ESAIC[1]

Perioperative impact of the guideline

Intubation

Intraoperative

Postoperative

Muscle relaxants in tracheal intubation and rapid sequence induction intubation (RSII)

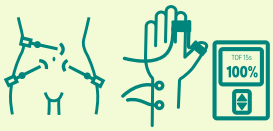
with muscle relaxant approved

rocuronium or succinylcholine

The ESAIC recommends **using a muscle relaxant to facilitate tracheal intubation,** and reduce pharyngeal and/or laryngeal injury following endotracheal intubation. For **RSII, the use of a fast acting muscle relaxant such as succinylcholine 1 mg kg^{-1} or rocuronium 0.9 to 1.2 mg kg^{-1} is recommended.** [1]

Based on recommendations 1 to 3, grade 1A, 1C and 1B respectively.[1]

Intensity of neuromuscular blockade and strategies for the diagnosis and treatment of residual neuromuscular paralysis



Deepen NMB if surgical conditions need improvement

The ESAIC recommends deepening neuromuscular blockade **if surgical conditions need to be improved** (Grade 1B).[1]

Quantitative NMM at adductor pollicis muscle

The ESAIC recommends **the use of ulnar nerve stimulation and quantitative neuromuscular monitoring** (NMM) at the adductor pollicis muscle to exclude residual paralysis. (Grade 1B)[1]

sugammadex

The ESAIC recommends **using sugammadex to antagonise deep, moderate and shallow neuromuscular blockade induced by aminosteroidal agents (rocuronium, vecuronium)** (deep: posttetanic count >1 and TOF count 0, moderate: TOF count 1 to 3, shallow: TOF count 4 and TOF ratio < 0.4). (Grade 1A)[1]

TOF >0.2 before neostigmine

The ESAIC recommends **advanced spontaneous recovery (i.e. TOF-ratio >0.2) before starting neostigmine-based reversal** and to continue quantitative monitoring of neuromuscular blockade until a TOF ratio of more than 0.9 has been attained. (Grade 1C)[1]

Deep neuromuscular blockade in postoperative pain and incidence of peri-operative complications

not enough evidence

There is insufficient evidence to recommend deep neuromuscular blockade in general to reduce postoperative pain or decrease the incidence of peri-operative complications (Grade 2C).[1]

Reference:

Fuchs-Buder T, Romero CS, Lewald H, et al. Peri-operative management of neuromuscular blockade: A guideline from the European Society of Anaesthesiology and Intensive Care. Eur J Anaesthesiol. 2022 Nov 16. doi: 10.1097/EJA.0000000000001769. Epub ahead of print.

Short prescribing information BRIDION® (sugammadex)

BRIDION®: C: Sugammadex. **I:** Reversal of rocuronium- or vecuronium-induced neuromuscular block (NMB). **D:** Use only by or under the supervision of an anesthetist. Use appropriate neuromuscular monitoring technique. Recommended dose depends on degree of NMB, not anesthesia procedure. Adults: Routine reversal of NMB: dose 4.0mg/kg body weight at 1-2 Post-Tetanic Counts (PTC); dose of 2.0mg/kg if spontaneous recovery until recovery of two stimulus responses (T2). Immediate NMB reversal dose: 16.0mg/kg. Immediate reversal of NMB after vecuronium-induced blockade not recommended. Dosage on recurrence of NMB: Initial 2mg/kg or 4mg/kg, then re-application of 4mg/kg recommended. Possible need for artificial respiration. After 2nd sugammadex dose, closely monitor patient. Renal failure: Not recommended for severely impaired renal function including dialysis (CrCl < 30ml/min). Adipose patients: Base sugammadex dose on actual body weight. Liver failure: Use with great caution in severe liver failure or in liver failure with coagulopathy. Correct route of administration: administer i.v. rapidly (within 10 sec), preferably once-only bolus in existing i.v. route. **For further indications and the corresponding dosing, please refer to the full prescribing information. CI:** Hypersensitivity to active substance/excipients. **Pr:** Artificial respiration required until sufficient spontaneous respiration obtained. Even after sufficient recovery from NMB, artificial respiration may be required due to other medications. If recurrence occurs after extubation, provide adequate artificial respiration. Recurrence of NMB: Lower doses than recommended may increase the risk of recurrence of NMB after initial reversal and should not be used. Not for reversal of block by non-steroidal neuromuscular blockers (e.g. succinylcholine or benzylisoquinoline-like substances). Not to reverse NMB by other steroidal neuromuscular blockers than rocuronium or vecuronium. Anesthesia complications: If NMB is reversed under continued anesthesia, additional doses of the anesthetic and/or opioid are required. Close monitoring of hemodynamic parameters during and after administration (bradycardias). In clinically significant bradycardia, immediately take appropriate emergency actions and administer an anticholinergic. Effects on hemostasis: Use cautiously in patients with anamnestic or therapeutic anticoagulation. Hypersensitivity reactions: Prepare and take necessary precautions for hypersensitivity reactions (including anaphylactic reactions). **DDI:** Displacement of toremifene and fusidic acid, complex formation with hormonal contraceptives (additionally use barrier-forming contraceptives). In vitro: influencing serum progesterone levels, pharmacodynamic interactions (prolongation of aPTT and PT) with vitamin K antagonists, unfractionated heparin, low molecular weight heparinoids, rivaroxaban, dabigatran. **P/L:** No use during pregnancy unless absolutely necessary. Not recommended during lactation. **UDE:** Common: cough, nausea, vomiting, attenuated therapeutic effect. **P:** Solution for injection in vials: 200mg/2ml, 500mg/5ml. **C:** B. **MAH:** MSD Merck Sharp & Dohme AG, Werftestrasse 4, 6005 Lucerne, Switzerland. (V4.0); CH-XBR-00005. Before prescribing, please consult the full prescribing information published on the homepage of Swissmedic (www.swissmedicinfo.ch).

MSD Merck Sharp & Dohme AG, Werftestrasse 4, 6005 Luzern, Reprints of cited literature can be requested at dpoc.switzerland@msd.com, +41 58 613 30 30, www.msd.ch, CH-XBR-00348; 01/2023