Anaesthetic Department
Sugammadex - Full Clinical Guideline

Reference no.: CG-ANAES/2021/021 v3.0.0

1. Introduction

Sugammadex is the first "selective relaxant binding agent" for rapidly reversing any depth of Rocuronium or vecuronium induced neuromuscular blockade.

Routine use of Sugammadex cannot be justified as it is very expensive. It should NOT be used for routine reversal from shallow neuromuscular blockade (TOF count >2).

2. Aim and Purpose

The following is designed to clarify the situations in which its use would be clinically appropriate and provide dosage guidance relevant to the clinical situation.

3. Indications for use of Sugammadex

- When immediate reversal is required, i.e. where Rocuronium has been used and a "**cannot intubate, cannot ventilate"** scenario has occurred. A single bolus dose of 16mg/kg should be administered rapidly (within 10 seconds).

In the following situations Sugammadex should be administered under consultant guidance and guided by peripheral nerve stimulator monitoring:

- Clinical situations where avoiding the use of a combination of neostigmine and glycopyrolate would confer significant safety benefits to patients e.g.: avoidance of tachyarrhythmia's or bronchospasm in unstable patients.
- Situations where rapid sequence induction is indicated and Rocuronium would confer significant benefits over suxamethonium (e.g. hyperkalemia), but elimination of Rocuronium sufficient to allow reversal with neostigmine is not anticipated (e.g. short procedures or patients with reduced liver function).
- Situations where residual neuromuscular blockade would be particularly deleterious and may result in requirement for ongoing ventilatory assistance e.g. morbid obesity and some patients with difficult airways or severe respiratory disease.
- Residual neuromuscular blockade in patients who have already been reversed with standard doses of neostigmine and glycopyrolate and prolonged anaesthesia would be detrimental.

4. Dosage Guidelines for Sugammadex

A standard dose of 4mg/kg is recommended for deep block = 1 to 2 post-tetanic counts

A standard dose of 2mg/kg is recommended for moderate block = spontaneous recovery of 2nd twitch.

Immediate reversal of profound neuromuscular block

(e.g following rapid sequence induction using rocuronium)

Table 1: Dose of Sugammadex required to reverse profound neuromuscular blockade, use actual body weight

Weight (Kg)	Dose of Sugammadex (mg)	Amount in mls
40	640	6.4
50	800	8.0
60	960	9.6
70	1120	11.2
80	1280	12.8
90	1440	14.4
100	1600	16.0

Reversal of deep and moderate neuromuscular block

Table 2: Dose of Sugammadex required to reverse deep and moderate neuromuscular blocks

Weight (Kg)	Dose for deep block	Dose for moderate block
40	160 mg (1.6mls)	80 mg (0.8 mls)
50	200 mg (2.0 mls)	100 mg (1.0 ml)
60	240 mg (2.4 mls)	120 mg (1.2 mls)
70	280 mg (2.8 mls)	140 mg (1.4 mls)
80	320 mg (3.2 mls)	160 mg (1.6 mls)
90	360 mg (3.6 mls)	180 mg (1.8 mls)
100	400 mg (4.0 mls)	200 mg (2.0 mls)

The use of appropriate neuromuscular monitoring technique is essential to monitor the recovery from blockade.

5. Cautions and Interactions

- If re-administration of Rocuronium or vecuronium is required a waiting time of 24 hours is recommended. If neuromuscular blockade is required within 24 hours then an alternative non- steroidal neuromuscular blocking agent must be used
- Sugammadex may decrease the progesterone levels in women taking oral contraceptives and additional contraception should be used for at least 7 days. If these 7 days runs beyond the end of a packet then the next packet should be started immediately without a break. A documented discussion should take place with female patients of child bearing age who have received Sugammadex, and the relevant patient information provided *https://neti.uhdb.nhs.uk/download.cfm?doc=docm93jijm4n5193.pdf&ver=31550*

- Flucloxacillin, fusidic acid and toremifene may displace Rocuronium or vecuronium from Sugammadex therefore, patients should be monitored post-operatively for signs of block recurrence
- Allergic type reactions (flushing, urticarial rash) are uncommon >0.1% to < 1% of patients
- Sugammadex is not recommended in those with severe renal impairment (creatinine clearance < 30mls/min), it is not metabolised or excreted by the liver and theoretically could accumulate. However, a recent paper in the BJA that compared patients with renal impairment vs patients with normal renal function, demonstrated only a slight delay (2.0 min vs 1.65 min) in recovery of a TOF ratio of 0.9. There was no recurrence of blockade in either group; however patients with renal impairment may need a longer period of monitoring for signs of recurrence of block.

6. References (including any links to NICE Guidance etc.)

1. Naguib M. Sugammadex: Another Milestone in Clinical Neuromuscular Pharmacology. Anaesthesia and Analgesia, 2007, Vol.104 (3), 575-581.
2. Sugammadex: Summary of product characteristics. Schering-Plough Corporation
3. Staals LM et al. BJA, 2008, Vol. 101 (4), 492-497

7. Documentation Controls

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