

The use of succinylcholine after sugammadex reversal

Chie Asakura¹ · Hajime Iwasaki¹

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To the Editor:

We recently reported a case series on re-establishment of neuromuscular block with rocuronium after sugammadex reversal [1]. We found no reports on the usage of succinylcholine to re-establish neuromuscular block, therefore we present our case. A 69-year-old female (weight 57.5 kg) was scheduled for right breast total resection. Anesthesia was induced and maintained with propofol, remifentanyl, and fentanyl. A total of 50 mg rocuronium was given during the surgery. Sugammadex 120 mg (2 mg/kg) was administered before extubation when spontaneous breathing was observed. After the initial surgery, the patient underwent hemostatic surgery for continuous postoperative bleeding. Anesthesia was induced with propofol and remifentanyl, and ulnar nerve stimulation was performed using TOF Watch[®] (Organon, Dublin, Ireland). A 50-mA train-of-four (TOF) stimulation was delivered every 15 s. Succinylcholine 60 mg (1 mg/kg) was administered 3 h after sugammadex administration. TOF responses disappeared at 85 s and tracheal intubation was successfully performed.

It is known that sugammadex does not affect the onset of succinylcholine. However, residual nondepolarizing muscle

relaxants may cause resistance to the effects of succinylcholine [2]. The mean onset time of succinylcholine 1 mg/kg is reported to be 56 s [3]. We successfully re-established neuromuscular block with a similar onset time, even after the initial use of rocuronium and sugammadex. Since little is known about the effects of residual nondepolarizing muscle relaxants on succinylcholine, it is important to administer an adequate dose of sugammadex according to objective neuromuscular monitoring to prevent residual neuromuscular block.

References

1. Iwasaki H, Sasakawa T, Takahoko K, Takagi S, Nakatsuka H, Suzuki T, Iwasaki H. A case series of re-establishment of neuromuscular block with rocuronium after sugammadex reversal. *J Anesth*. 2016;30:534–7.
2. Cullen DJ. The effect of pretreatment with nondepolarizing muscle relaxants on the neuromuscular blocking action of succinylcholine. *Anesthesiology*. 1971;35:572–8.
3. Wright PM, Caldwell JE, Miller RD. Onset and duration of rocuronium and succinylcholine at the adductor pollicis and laryngeal adductor muscles in anesthetized humans. *Anesthesiology*. 1994;81:1110–5.

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✉ Hajime Iwasaki
iwasakih@asahikawa-med.ac.jp

¹ Department of Anesthesiology and Critical Care Medicine, Asahikawa Medical University, 2-1-1 Midorigaoka-higashi, Asahikawa, Hokkaido 078-8510, Japan