Anaphylaxis after sugammadex administration

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To the Editor,

Sugammadex has been available in Japan since April 2010. In the United States, the Food and Drug Administration expressed concerns about its safety following reports of hypersensitivity reactions.¹ We describe the case of a young man who developed a severe allergic reaction after administration of sugammadex. Consent for publication of this letter was obtained from the patient.

A 37-yr-old male patient (weight 58 kg, height 173 cm) with a duodenal tumour was scheduled for duodenectomy. Besides a history of anemia and allergy to shrimp and crab, he had no other medical or surgical history. After insertion of an epidural catheter, anesthesia was induced with propofol 120 mg, rocuronium 40 mg, and remifentanyl $0.3 \mu\text{g}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, and his trachea was intubated. A latex urinary catheter was inserted. Anesthesia was maintained with 1.5% sevoflurane in 33% oxygen and air, remifentanyl $0.05 \mu\text{g}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, and intermittent epidural doses of 1.5% lidocaine. Cefazoline 1 g and droperidol 1 mg were also administered during surgery. Intraoperatively, the patient's blood pressure was maintained at 90/40–110/60 mmHg and his heart rate was 60–70 beats·min⁻¹. Before the end of surgery, 0.5% ropivacaine 6 mL was administered epidurally for postoperative analgesia. After confirming the train-of-four count of 3, sugammadex 120 mg was injected intravenously to antagonize residual neuromuscular blockade. The patient's trachea was extubated after recovery from

paralysis. One minute after the administration of sugammadex and 25 min after the administration of ropivacaine, the patient's blood pressure decreased to 86/48 mmHg, and his heart rate increased from 60 to 100 beats·min⁻¹. Ephedrine 10 mg and 6% hydroxyethylated starch 500 mL were given intravenously with no effect on systolic blood pressure. At the same time, the patient complained of severe itching on the front of his chest, and in a few minutes, wheals were noticed over his entire body with severe swelling of the lips and palpebrae. The possibility of an allergic reaction to sugammadex was suspected, and methylprednisolone 125 mg and hydroxyzine 25 mg were administered. The patient's blood pressure decreased further to 47/29 mmHg eight minutes after administration of sugammadex, but it was restored to 128/48 mmHg with administration of a total dose of phenylephrine 400 μg and 1 L of fluids over ten minutes. His lungs were clear on auscultation and oxygen saturation was 98% while breathing oxygen via a facemask. The patient was observed in the operating room until he became hemodynamically stable and the wheals started fading, and he was then transferred to the intensive care unit. By postoperative day one, the wheals had completely disappeared. The rest of the recovery period was uneventful, and the patient was discharged from the hospital on postoperative day 16. Five weeks after the event, he underwent a drug-induced lymphocyte stimulation test (DLST) using sugammadex, the results of which were negative.

Our clinical impression in this case was strongly in favour of sugammadex-induced anaphylaxis because symptoms characteristic of anaphylactic shock developed one minute after administration of the drug. In addition, the patient had no history of latex or any other relevant allergy. Postoperatively, we did not recommend skin testing because of the possibility of causing another allergic

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reaction but recommended DLST instead. The DLST is convenient because only a blood sample is required; however, its sensitivity may be as low as 20%.²

Other reports have been published describing sugammadex-associated anaphylaxis with clinical doses.^{3,4} The clinical features are similar to our case. Since anaphylaxis caused by sugammadex is likely to develop at the time of extubation and transfer of the patient, vigilance should be exercised for a sufficient period of time in all patients who receive sugammadex.

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