Table 1 Patient characteristics and previous treatment received for myofascial pain syndrome. M, male; F, female; Diag., diagnostic; TPI, trigger point injection; A, abdomen; CT, cervicothoracic; NRS, numerical rating scale

Case	Sex	Age (yr)	Duration of symptoms (yr)	Previous treatments for trigger points	Site	Number of triggers treated	NRS baseline	NRS 6 months
1	F	34	5	Endometrial laser, Diag. laparoscopy, steroid TPI×3	A	2	8	0
2	F	39	4	Hysterectomy, steroid TPI×5	A	2	8	2
3	M	48	3	Steroid TPI×3	A	3	8	2
4	M	49	6	Steroid TPI	A	4	8	8
5	F	50	5	Diag. laparoscopy, steroid TPI×1	A	2	9	9
6	M	45	4	Steroid TPI×4	A	3	7	4
7	F	40	5	Steroid TPI×3	A	2	8	1
8	F	69	3	Steroid TPI×2	A	3	6	2
9	M	66	5	Steroid TPI×3	CT	1	7	1
10	F	42	2	Steroid TPI×2	CT	1	7	2
11	F	59	3	Steroid TPI×6	CT	2	7	7
12	M	32	3	Steroid TPI×2	CT	1	7	2

This audit has inherent weakness including a small sample size and lack of a control group. However, this report highlights the advantages of ultrasound guidance in enhancing the accuracy and safety profile of a minimally neuro-destructive technique. Further randomized controlled trials are needed to confirm the efficacy of this treatment modality.

Declaration of interest

None declared.

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Sugammadex in rocuronium anaphylaxis: dose matters

Editor—Anaphylaxis is a known complication of rocuronium and treatment with sugammadex has raised questions regarding its role and dose.[1–4] We report a case that indicates that its efficacy in this role is dose-dependent.

A 44-yr-old morbidly obese woman required surgery for an incisional hernia associated with re-siting of her colostomy. She had had many surgical procedures, in relation to her spina bifida. Her medical history also included chronic renal failure, hypertension, a renal stone, and an atonic bladder.

Three months earlier, she had been screened for allergies after developing angio-neurotic oedema after a procedure on her bladder. The screen identified latex allergy, but no response to neuromuscular blocking agents.

Surgery was planned with total latex exclusion and a rapid sequence induction. After propofol 250 mg, rocuronium 80 mg, and sufentanil 10 μg, the train of four disappeared and tracheal intubation was performed within 2 min. No antibiotics were administered.

Immediately, the arterial pressure decreased to 50/28 mm Hg, the heart rate increased to 130 beats min^{-1}, and the inflation pressure increased. The diagnosis was anaphylactic shock, and oxygen 100%, a rapid infusion of 500 ml of crystalloid, and i.v. epinephrine 0.1 mg were given.

Rocuronium was suspected, and it was decided to give sugammadex 1200 mg (12 mg kg^{-1}). Immediately, the arterial pressure increased to 180/90 mm Hg, the heart rate decreased to 95 beats min^{-1}, and a maculo-papular rash appeared. Given the urgency of the situation, the train of four was overlooked. Blood samples for histamine, tryptase, and for specific IgE levels were obtained and repeated 1 h later.

Hypotension and tachycardia returned, together with bronchospasm and desaturation to 85% Sp_{O_2}. Six additional

boli of epinephrine 0.1 mg and then an i.v. infusion at 2 mg h^{-1} were given. Sugammadex 400 mg was also given, bringing the total to 16 mg kg^{-1}.

Again arterial pressure increased to 140/65 mm Hg and stabilized, the heart rate decreased to 90 beats min^{-1}, and the bronchospasm relaxed. The operation was postponed. Methyprednisolone 100 mg was given and she was weaned off the epinephrine infusion over the next 10 h.

Analysis of the blood samples supported a diagnosis of anaphylaxis. Immuno-assay identified the source as rocuronium.

Screening 9 weeks later showed a positive response to rocuronium, mivacurium, and vecuronium, but not succinylcholine, pancuronium, atracurium, or cisatracurium. Povidone iodine, chlorhexidine, propofol, sufentanil, and sugammadex all tested negatively. The surgical procedure was then performed uneventfully under general anaesthesia without neuromuscular blocking agent.

It seems logical to administer a dose of sugammadex sufficient to ensure a 1 to 1 ratio for every molecule of rocuronium. To achieve this, a theoretical sugammadex to rocuronium dose ratio of 3.57:1 is needed. In clinical practice, the evidence indicates that sugammadex 16 mg kg^{-1} is needed to obtain a T4/T1 ratio >0.9 in <3 min in the presence of profound neuromuscular block. Dosage is clearly an important issue, and it is proposed that for anaphylaxis, at least 16 mg kg^{-1} of sugammadex should be given with the aim of isolating as many molecules of neuromuscular blocking agent as quickly as possible.[1] Our case required a total dose of 16 mg kg^{-1} before the improvement was maintained.

In summary, the importance of this case lies in the apparent dose-dependent recovery from a proven case of rocuronium anaphylaxis. We suggest the adoption of a dose of sugammadex of at least 16 mg kg^{-1} when the treatment of rocuronium anaphylaxis does not rapidly respond to standard measures.

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Clinical evaluation of the C-MAC D-Blade videolaryngoscope in severely obese patients: a pilot study

Editor—Morbidly obese patients often have a large neck circumference that necessitates special positioning for intubation and reduced posterior airway space that could lead to improper mask ventilation.[1 2] Videolaryngoscopy provides superior views compared with traditional laryngoscopy in both normal and difficult intubation situations and is relatively easy to use, making it potentially advantageous for this type of patient.[3 4] We performed a pilot study to evaluate the performance of the C-MAC D-Blade videolaryngoscope (Karl Storz, Tuttlingen, Germany) in severely obese patients and to test the hypothesis that the C-MAC D-Blade would enable a superior view of the glottic structures, and also provide faster tracheal intubations than the C-MAC blade.

After approval from the institutional board of the University of Texas Medical School at Houston, 50 morbidly obese (BMI ≥40 kg m^{-2}) ASA I–III patients who underwent elective surgeries at Memorial Hermann Hospital-Texas Medical Center (Houston, TX, USA) provided written consent. The patients were randomized into either a group that underwent laryngoscopy first with the C-MAC followed by a secondary laryngoscopy with the C-MAC D-Blade and then tracheal intubation with the D-Blade or a group that underwent laryngoscopy first with the C-MAC D-Blade then laryngoscopy with the C-MAC and then tracheal intubation with the C-MAC. Intubations were performed by second- and third-year residents (CA-2 and CA-3). The time required to obtain optimum view [modified Cormack–Lehane (CL) grade score],[5] time required to intubate, and the number of attempts were recorded. The time to the optimal view of the glottis was defined as the time from the moment the anaesthesiologist had the laryngoscope in hand to time to optimal visualization of vocal cords. Intubation time was defined as the time from which the anaesthesiologist had a tracheal tube (TT) in hand to when the TT cuff passed distally through the vocal cords. Data were compared by the Mann–Whitney U-test (continuous variables) and χ^2 test (categorical variables) using Stata (Stata Corp., College Station, TX, USA). Times were reported as median (1st inter-quartile, 3rd inter-quartile). Comparisons were considered statistically significant if $P<0.05$.

Patient characteristics and pre-procedural intubation conditions did not differ between the groups. The average time to glottis visualization was shorter for the C-MAC when compared with the D-Blade when used during the first laryngoscopy [6.7 (4.45, 9.7) vs 7.2 (4.82, 9.95) s, $P=0.67$]. The C-MAC was found to provide a lower average time to visualization of