Asystole During Laryngoscopy of a Patient With Pleural and Pericardial Effusions

To the Editor: The February 2008 AANA Journal contained an interesting case report that questioned the association of laryngoscopy with an asystolic event. The origin of this asystole may have involved the interplay of several factors, the most significant of which was the administration of succinylcholine before the laryngoscopy. The association of succinylcholine and cardiac dysrhythmias was not mentioned as a likely causative factor in this article.

Bradyasystolic events following a single dose of succinylcholine in adults, although a rare event, has been well-documented in the older literature. Sorensen et al² published a case series of 20 patients who experienced either bradycardia (n = 18) or asystole (n = 2) following thiopental, succinylcholine, fentanyl, pancuronium, or gallamine induction. All patients had a normal electrocardiogram preoperatively. Only 1 patient was noted to have taken a beta blocker preoperatively, which was salbutamol aerosol for management of asthma. Twelve of the patients received what today would be considered large doses of droperidol at the time of induction (5-20 mg). None of the patients were premedicated with atropine, and 4 received morphine and scopolamine “subcutaneously.” There was no notation of laryngoscopy during the time course of these events. Treatment involved atropine, 0.5 to 1.0 mg (n = 16); precordial thump (n = 3); external cardiac massage (n = 1); or, most interesting of all, nothing (n = 3). The patients who received no treatment at all included the 2 patients in the series who experienced asystole. All patients recovered without sequelae.

Another case series reported by Inoue and Reichelt³ involved 46 patients who received fentanyl, etomidate, and succinylcholine for induction. Bradycardia was described as severe in only 1 patient, and 2 experienced asystole. All of these patients had significant cardiovascular disease and were scheduled for coronary artery bypass grafting. Only 1 patient had been taking a beta blocker regularly (metoprolol), and this was discontinued 2 days before surgery. Preoperative medication included morphine (n = 2) and morphine and diazepam (n = 1). No antimuscarinic agent was given preoperatively. The bradyasystolic events were described as occurring 30 seconds to 1 minute following the injection of succinylcholine. All patients received external cardiac massage, and 2 received atropine, 1.0 mg. It is of interest to note that one of the asystolic patients did not receive atropine. The heart rates improved after 10 to 15 seconds of asystole. In all cases, the remainder of the anesthetic and the surgery proceeded without event.

Rivard and Liebowitz⁴ present a case report of a 10-second episode of asystole following an alfentanil, pentothal, curare/succinylcholine induction. The patient took no prescription medication and had received only midazolam preoperatively. The event was described as occurring “immediately before laryngoscopy.” The patient was intubated, and the pulse and blood pressure returned without pharmacologic or other intervention.

Two case reports of bradyasystolic events associated with electroshock therapy attribute the cause to the administration of propranolol preoperatively in an effort to reduce electroshock therapy-associated dysrhythmias.⁵,⁶ Both reports note that “the standard administration of atropine was omitted.”⁷ Anesthesia was then induced with succinylcholine and thiopental. One patient was treated with cardiopulmonary resuscitation, with return of normal sinus rhythm after 15 seconds of asystole. The second case was treated with “thump pacing,” with return of normal sinus rhythm after 15 seconds of asystole. Both patients recovered uneventfully. Succinylcholine, rather than propranolol, may have been the trigger for these asystolic events.

Protection against succinylcholine-induced bradycardia can be achieved by the preoperative administration of an antimuscarinic agent. Both glycopyrrrolate and atropine have been noted to be equally protective, and 1 paper suggests the protective effect of glycopyrrrolate is “similar to or greater than that of atropine.”⁸ This information strongly suggests the authors of the AANA Journal case
A very interesting case report, presenting a scenario that every anesthesiologist will encounter at some point in his or her career.

REFERENCES