CORRESPONDENCE

a patient in whom five episodes of postoperative extrapyramidal reaction developed after receiving 4 mg intravenous ondansetron before induction of anesthesia.

A 33-yr-old woman, 163 cm tall, and 75 kg, with an otherwise unremarkable medical history was scheduled for laparoscopic cholecystectomy. Vital signs, physical examination, and laboratory data were normal. The patient was taking no medication at home and denied having a drug allergy. Premedication included 30 ml sodium citrate by mouth, 2 mg intravenous midazolam, and 4 mg intravenous ondansetron. One gram cefazolin was also administered. Anesthesia was induced with 300 mg thiopental and 100 µg intravenous fentanyl and was maintained with desflurane and fentanyl. Tracheal intubation was facilitated with succinylcholine. Rocuronium was used for muscle relaxation. At the conclusion of a 45 min operation, the muscle relaxant was antagonized with 3 mg neostigmine and 0.6 mg intravenous glycopyrrolate. The patient received 30 mg intravenous ketorolac. The trachea was extubated. Respiration was adequate, and vital signs were stable. Approximately 10 min after arriving in the recovery room, the patient complained that her feet hurt. Both legs were rigid and were in extensor spasm. The upper extremities then developed jerky motions that could be stopped by holding her arms down. The patient was crying and extremely fearful and stated that she did not know what was happening to her. She never lost consciousness and remained lucid. The symptoms resolved after several minutes, but reappeared 10 min later. This time, there were jerky movements of the head and neck, in addition to the previous findings. She received 25 mg intravenous diphenhydramine and 2 mg intravenous midazolam, which stopped the abnormal muscular activity. Two more episodes occurred during the next 30 min, each was stopped by administration of 5 mg diazepam. Electrolytes were normal. Neurology consultation diagnosed the motor activity to be a dystonic reaction. Five hours later, the patient had a final episode that responded to an additional 5 mg diazepam. She was discharged on the next day.

Substantial evidence supports a regulatory role of serotoninergic innervation to the basal ganglia and related nuclei in the limbic system (e.g., complex attenuation by 5-HT2 antagonists) on the central D2 receptor motor inhibitory activities.8 Psychiatric symptoms or strong affects, or both, are also observed during extrapyramidal manifestations produced by D2-receptor antagonists.9 The interaction of ondansetron with D2 receptors may explain the extrapyramidal reactions and possible psychiatric symptoms observed in our patient. Although extrapyramidal reactions may be induced by ketorolac,10 the incidence appears to be low. There has been no report in the literature of this side effect associated with the clinical use of ketorolac. A synergistic response, however, to ondansetron and ketorolac remains to be a possible mechanism for the manifestations. The amount of ondansetron used in previous reports9 ranged from 7.5 to 37.5 mg a day in divided doses for a few days. Our case appears to suggest that a 4-mg dose of ondansetron, usually used for the treatment of perioperative emesis, may precipitate extrapyramidal side effects.

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Extubating the Difficult Airway—An Unusual Role for a Fogarty Catheter

To the Editor—The American Society of Anesthesiologists Task Force on Management of the Difficult Airway have made recommendations for an extubation strategy after difficult endotracheal intubation.1 One of the components of this strategy involves the `short-term use of a device that can serve as a guide for expedited reintubation.`2 Jet stylets, tube exchangers, and even fiberoptic bronchoscopes have all been used for this purpose.2,3 These instruments, however, are not always available, may be somewhat cum-

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bersonic to use, and may not be easily tolerated by the awakening patient.

I would like to describe a technique that has given me increased confidence with extubation of the difficult airway. Before extubation, I pass a modified 6-French, 80-cm Fogarty arterial embolotomy catheter down the endotracheal tube. I then remove the endotracheal tube over the catheter, leaving the catheter in place (fig. 1). The Fogarty catheter is modified by cutting off the Luer-lock syringe connector. The catheter is extremely well tolerated, both orally and nasally, and may be left in place for some considerable time. I have used the device on four occasions and no patient to date has even remarked on its presence. If rapid reintubation proves to be necessary, the catheter is rigid enough to act as a stent for an endotracheal tube or tube exchanger. This technique is not a panacea for all situations of this type, and there is no reason to believe that it is immune to problems any more than all the others. However, with selective use, I believe it to be a valuable aid to extubation of the difficult airway.

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