LETTERS TO THE EDITOR

APPEAL FOR FENTANYL PREHOSPITAL USE

To the Editor—The October/December 2003 issue of Prehospital Emergency Care contains the new National Association of EMS Physicians (NAEMSP) position paper on prehospital pain management.1 We commend Drs. Alonso-Serra and Wesley and the NAEMSP Standards and Clinical Practice Committee for their work. The authors state accurately that “There is insufficient published evidence to decide which is the best agent for prehospital analgesia. The medical director of each emergency medical services (EMS) system must evaluate different alternatives available on the market and decide which agent or agents are most suitable for the system’s local needs and capabilities.” We would like to appeal for the expanded use of fentanyl citrate (sublimaze) in prehospital analgesia. There are at least four reasons why fentanyl is ideally suited for prehospital use:

1. Fentanyl reaches its peak effect in 2–3 minutes, which not only brings very rapid pain relief, but also allows safer titration. Intravenous morphine does not reach its peak effect until about 15 minutes, and meperidine does not reach its peak effect until about 10 minutes. This means that if a repeat dose is given before the peak effect of the prior dose, there is a risk of dose stacking and potential overdose.

2. Fentanyl has a short duration of action. Fentanyl lasts about 30 minutes, whereas morphine lasts three to four hours and meperidine, two to three hours.2 While fentanyl may require more frequent administration, it also provides some inherent safety as well as peace of mind for receiving physicians. If EMS providers administer morphine 10 minutes before arrival at the hospital and the receiving physician is concerned about masking changes in mental status or the abdominal examination (regardless of the evidence in the literature on this topic), the physician must either wait several hours, administer naloxone and risk unmasking severe pain, or order potentially unnecessary tests. With fentanyl, the physician has the realistic option of simply letting the drug effects dissipate.

3. Fentanyl does not provoke histamine release as does morphine or meperidine.3 The histamine release is a major component of the hypotension associated with the latter two medications. Although hypotension may still occur occasionally from reduced preload and/or sympathetic blockade, there is much less hypotension associated with fentanyl than there is with morphine or meperidine.

4. Fentanyl is unlikely to provoke nausea and vomiting. This not only is more comfortable for our patients and prevents the complications of vomiting, but also may decrease the requirement for administration of antiemetics, with their potential adverse effects.

Fentanyl is a potent synthetic narcotic. The increased potency is reflected in the dosing, not in the inherent dangers. Rather than being dosed in milligrams, fentanyl is dosed in micrograms. Morphine 10 mg and meperidine 75 mg is approximately equivalent to 100 µg of fentanyl.4 So long as the appropriate dose is used, the increased potency has no clinical implications and should not be feared. The usual dose of fentanyl for adults is 25–50 µg, and up to 100 µg for severe pain.2 The usual dose of fentanyl for pediatrics is 1–2 µg/kg.2 We repeat doses up to every 5 minutes as needed, with the caveat that the duration of action becomes more prolonged after multiple doses have been administered. When administered intramuscularly, the dose may be repeated every 10–15 minutes as needed. Fentanyl is now available as a generic drug and costs little more than morphine.

Like all opioids, the major adverse effects of fentanyl are respiratory depression and sedation. Sedation is more common in children than adults. While most drug books list chest wall rigidity as a complication of rapid administration, this is rarely an issue with a typical analgesic dose outside of the neonatal period. It is worth noting that our anesthesia colleagues occasionally use huge doses of fentanyl (milligrams, not micrograms) for the induction and maintenance of anesthesia.

Our air medical service uses fentanyl as the primary analgesic
To the Editor—As the medical director of an air medical transport agency, I read with great interest the article by Werman and colleagues, “The Effect of Etomidate on Airway Management Practices of an Air Medical Transport Service,” in the April/June 2004 issue of Prehospital Emergency Care.1 While I applaud the authors’ efforts to share their experience with etomidate in rapid-sequence intubation (RSI), I disagree with their premise that one of etomidate’s benefits is to reduce the need for paralytic agents in RSI, and I am alarmed by the use of an RSI protocol that may delay definitive airway control.

Rapid-sequence intubation is an advanced airway management technique that uses both an induction agent and a paralytic agent to increase the ease of orotracheal intubation. RSI is therefore expected to increase the rate of successful intubation while minimizing complications. In fact, previous studies have documented both greater difficulty and relatively low intubation success rates (88%–89%)2,3 and a greater likelihood of cricothyrotomy4 with etomidate-only RSI. Despite its higher intubation success rate, a potential adverse effect of out-of-hospital RSI on patient outcome has recently been postulated.5 Unrecognized transient hypoxia with or without bradycardia during RSI has been identified as a possible explanation.6

Werman et al. describe an RSI protocol that directs the patient care provider to assess the level of sedation after the administration of etomidate and allows the provider to subsequently attempt intubation without paralysis at the provider’s discretion. When a paralytic agent is given, it is unclear whether the decision to administer the paralytic agent is made after an unsuccessful intubation attempt or after a period of observation following etomidate administration (but before intubation is attempted). Regardless, it appears that adherence to the described RSI protocol will result in a prolonged intubation procedure when the intubation requires a paralytic agent compared with intubation using etomidate alone. The delay in definitive airway control may be clinically significant, especially if it predisposes the patient to hypoxia.

Werman et al. report a reduction in the use of paralytic agents during RSI from 74.6% to 45.5% after the inclusion of etomidate in their RSI protocol. In other words, nearly half of the patients in the post-intervention group still required a paralytic agent. Stated differently, nearly half of the patients in the post-intervention group may have been intubated in a delayed fashion and thereby placed at increased risk of unrecognized hypoxia.

In summary, the study by Werman et al. adds to a growing body of emergency medical services research that argues against etomidate-only RSI. Since one cannot reliably predict who will require a paralytic agent after etomidate, RSI protocols should require administration of an induction agent followed immediately by a paralytic agent. A “wait and see” etomidate-only approach potentially delays definitive airway control, may increase the risk of unrecognized transient hypoxia during RSI, and may adversely affect patient outcome.