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Grand Mal Seizures Following Fentanyl-Lidocaine

To the Editor:—In experimental animals, seizure activity has followed the administration of high-dose fentanyl (200–400 $\mu\text{g}/\text{kg}$).¹ However, grand mal seizures recently have been reported in two patients after the use of much smaller doses of fentanyl (100–200 μg). Neurologic and EEG examinations of these patients were negative.^{2,3} The present case illustrates the occurrence of grand mal seizures following a fentanyl-lidocaine sequence.

The patient was a 24-year-old female, 60-kg body weight, who was scheduled for mitral valve replacement because of severe mitral stenosis. She was premedicated with morphine 10 mg, scopolamine 0.4 mg, and promethazine 25 mg. The patient came to the operating room in a sleepy condition. Anesthesia was induced with a bolus of fentanyl 10 $\mu\text{g}/\text{kg}$, which was injected over 2 min, while the patient was breathing 100% oxygen. Multiple premature ventricular contractions (PVCs) were observed, which were controlled by intravenous lidocaine 2 mg/kg. The PVCs disappeared, but the patient developed repeated episodes of grand mal seizures. Diazepam 10 mg could control the seizures. Subsequent anesthesia and surgery were uneventful. Postoperative neurologic examination was negative.

These grand mal seizures may be attributed to lidocaine administration. However, the small dose of lidocaine used incriminates the previous injection of fentanyl as a predisposing factor. It is possible that the threshold convulsive dose of lidocaine is diminished by prior fentanyl administration.

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A Neglected Source of Nitrous Oxide in Operating Room Air

To the Editor:—As a noninvasive monitoring technique, intraoperative measurement of end-tidal CO_2 is a common practice. Some of these CO_2 monitors require rather high-flow rates for sampling of gases, e.g., 150 ml/min for the Datex[®] Normocap CO_2 monitor or 200 ml/min for the NEC San-ei Expired Gas Monitor 1H21A[®]. Wasted sampling gases from these machines are another source¹ of air pollution in the operating room. Recently, we measured nitrous oxide concentrations in the breathing zone² of the anesthetist while a CO_2 monitor was in use.

In a well-ventilated room with a nonrecirculating supply of 13 air exchanges per hour, while the NEC San-ei Expired Gas Monitor 1H21A[®] was in use and with the anesthesia waste gas scavenger on (anesthesia gas flow of N_2O 41/min, O_2 21/min), nitrous oxide concentrations were below 25 PPM. However, in a poorly ventilated room (room ventilator off), nitrous oxide concentrations went up to around 100 PPM in an hour. Thus, in a poorly ventilated operating room, CO_2

monitor waste gas should be scavenged as well as anesthesia waste gases. Indeed, when CO_2 monitor waste sampling gas was scavenged, we were able to keep the nitrous oxide concentration below 25 PPM.

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