Life-threatening Reactions to Propofol

To the Editor: Propofol (2,6-diisopropyl phenol; Diprivan; Stuart Pharmaceuticals, Wilmington, DE) has been advocated as a titratable continuous infusion anesthetic agent associated with fast and smooth recovery (2, 7). The anesthetic properties of a smooth induction, short half-life, and rapid emergence from anesthesia after prolonged operations, with a low incidence of nausea and vomiting and little "hangover" sedation, suggest that this agent may be ideally suited for use in intracranial neurosurgery (6). It also may be given in combination with analgesics, such as sufentanyl and inhalational agents. Accordingly, we have adopted propofol for use in all cranial base, vascular, and functional neurosurgical procedures. We are currently using propofol (50–100 μg/kg/min infusion, with a burst suppression dosage of approximately 250 μg/kg/min used during periods of vascular interruption) in a balanced protocol with narcotic (sufentanyl) and low dosage inhalational (isoflurane) anesthesia.

We have experienced two potentially life-threatening complications among our first 150 patients undergoing propofol anesthesia at our institution. Both female patients (ages 28 and 39) received the balanced protocol (one receiving burst-suppressive dosages of propofol). Both patients experienced a rapidly evolving postoperative submandibular and laryngeal swelling with airway compromise, one requiring intubation and the other requiring an emergent tracheostomy for airway control within hours of emergence from anesthesia. Computed tomographic scans of the neck in both cases demonstrated massive swelling of laryngeal and facial soft tissue, consistent with angioneurotic edema. This pronounced swelling subsided slowly over a 4-day period with no permanent sequelae. The C1 esterase inhibitor (C1 INH) level on one patient tested revealed no abnormality. Of note is that both of these patients had previously received general anesthesia for unrelated surgical procedures without complication.

In an initial cooperative, comparative study of the use of propofol in 1465 pa-

tients undergoing a variety of surgical procedures, the agent compared favorably with other common infusional agents, such as thiopentone and methohexitone, in side effects produced (7). Recently, however, several reports of anaphylactoid reactions to this agent have emerged (1, 3–5). Propofol is insoluble in water and necessitates administration in emulsion form. Initially, the potential risk of such reactions with the surfactant carrier "Cremaphor EL" (2) prompted a substitution with a fatty emulsion containing soybean oil, glycerol, and egg phosphatide. The replacement of the Cremaphor carrier has clearly not eliminated the risk (3, 4). The higher incidence of severe allergic reactions to the drug in our experience may merely represent sampling error. It could also be suggested that the large total doses administered during extended cranial base and vascular procedures may increase the risk of such an occurrence; careful postoperative monitoring is essential to provide safe airway control in the event of such a reaction.

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