Anesthesiology
70:561, 1989

Adverse Reactions to Non-ionic Iodinated Contrast Media Do Occur during General Anesthesia

To the Editor:—The etiology of adverse reactions to intravenous radiopaque contrast media is not fully understood.[1] A recent review article stated that such reactions do not occur during general anesthesia.[2] With respect to ionic contrast media, this statement subsequently was shown to be untrue.[3] Non-ionic preparations are believed to be less likely to elicit anaphylactoid reactions.[4] We report a case of a severe systemic reaction to a non-ionic medium that occurred under isoflurane anesthesia.

An 18-yr-old caucasian girl weighing 58 kg underwent surgery for ventriculo-atrial shunting. Her medical history revealed two uneventful previous anesthetics for the same procedure, conducted with thiopental/isoflurane. Anesthesia was induced with a thiopental-succinylcholine-intubation sequence and maintained with isoflurane (0.8 vol.% end-tidal concentration) in O_2/N_2O (1:2 $l \cdot min^{-1}$). Ventilation was controlled and monitored by end-tidal capnometry. The anesthetic course was uneventful, and a ventriculo-atrial catheter was inserted and advanced towards the right atrium *via* the right internal jugular vein. Its position was confirmed by x-ray, facilitated by administration of 20 ml of iopamidol (Solutrast 300™, = 6000 mg iodine). Subsequent to this, an abrupt increase of heart rate was noted, which was ascribed to mechanical stimulation of the sinus node by the VA-catheter. However, neither a 2-cm withdrawal of the catheter, nor the administration of lidocaine (1 $mg \cdot kg^{-1}$) did reduce heart rate. Light anesthesia was suspected and an additional dose of thiopental (1.5 $mg \cdot kg^{-1}$) was administered. After this failed to normalize cardiac rhythm, the extensively draped patient was uncovered and found to display an exanthema. The legs were erythematous and the abdomen and thorax were mottled with urticaria. At this point, blood pressure decreased to 60/40 mmHg, airway pressure increased, and expiratory obstruction ensued. This was reflected by the capnogram, which changed from a plateau to a slope. Auscultation revealed pronounced wheezing over both lungs. Treatment was instituted with rapid intravenous infusion of crystalloids, tracheal administration of a β_2-stimulant aerosol and iv administration of H_1- and H_2-blocking agents, theophylline, and corticosteroids. Hypotension and bronchospasm subsided rapidly; the exanthema resolved slowly. Recovery was uneventful.

Retrospectively, the tachycardia should be interpreted as the initial sign of an anaphylactoid reaction which, in this case, can only be ascribed to the radiopaque material.

To our knowledge, severe systemic reactions to non-ionic iodinated contrast media during general anesthesia have not yet been reported. It must be concluded that the use of such non-ionic compounds, although associated with a reduced incidence of anaphylactoid reactions, does not necessarily preclude such a complication. The anesthesiologist must continue to be vigilant for anaphylactoid reactions when using non-ionic contrast material.

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(Accepted for publication December 6, 1988.)

Anesthesiology
70:561–562, 1989

More On Anesthesia Machines and Malignant Hyperpyrexia

To the Editor:— The article by Beebe *et al.* provides some concrete information upon which to base a policy for preparation of anesthesia machines to be used with MH-susceptible patients.[1] But, some of the recommendations are not justified by the findings of the study, nor are they necessarily the most practical or safest among available alternatives.

The suggestion to remove the vaporizers is based on an experiment with only one brand and model of anesthesia machine and ventilator, neither of which represents the largest fraction of the anesthesia market. In fact, Ohmeda Modulus II® and Foregger F500® machines isolate the vaporizers from the anesthesia-machine gas circuit when all the vaporizers are in the "OFF" position. Thus, a leaking vaporizer would not introduce anesthetic to the patient circuit.

Exchanging the ventilator is not clearly justified from the results presented. The ventilator relief valve is not necessarily the only source of residual anesthetic. To test the contribution of the ventilator, it should have been replaced entirely with one that had no store of anesthetic.

There are always new hazards, costs, and inconveniences associated with any recommendation. Removing vaporizers can be hazardous, since this creates the possibility of their being dropped or tipped over. On some models of machines, it is necessary to install a fitting to bypass the gap left by removing the vaporizers. Maintaining a special ventilator in a place where it is readily accessible can be impractical in a large institution.

Until recently, it was our policy to maintain two entirely separate anesthesia machines solely for use with MH-susceptible patients. Continuing the policy entailed fully equipping each of these machines with