Lack of Tolerance to Propofol

To the Editor:—We read with interest the report of Setlock et al. concerning the lack of tolerance to repeated doses of propofol used for sedation in pediatric radiation therapy patients. We, like Setlock et al., and in contrast to Deer and Ridi, have not seen tolerance to propofol develop in these patients. Specifically, in two recent patients accounting for more than 50 treatments, there was no increase in the induction and maintenance doses for sedation. We would like to add this experience to that of the authors.

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Anaphylactoid Reactions to Protamine

To the Editor.—Some aspects of the interesting case report by Takenoshita et al. merit, in our opinion, further discussion.

Acute reactions to protamine vary from mild reactions, such as erythema, urticaria, and transient mild elevations in pulmonary artery pressure to more severe reactions, which include bronchospasm, hypotension, and, although rare, cardiovascular collapse and death. Protamine is also hypothesized to be a potential cause of fulminating noncardiogenic pulmonary edema after cardiopulmonary bypass. The exact mechanisms by which protamine produces these adverse reactions are not completely understood and include direct, nonimmunologic release of histamine, immunoglobulin E (IgE)-mediated release, complement-fixing antiprotamine immunoglobulin G (IgG) antibodies, and protamine-heparin complexes that activate complement.

The case report, as presented, contributes only partially to the understanding of adverse reactions to protamine. The acute facial edema and marked increase of tryptase in the described patient indicate a significant skin mast cell degranulation. However, an antibody-mediated mechanism is the likely cause for the increased risk of life-threatening reactions to protamine in patients with diabetes who receive neutral protamine Hagedorn insulin. Binding of protamine to specific IgE or possibly to subclass 4 of IgG on mast cells or basophils may result in a release of histamine and tryptase. Unfortunately, neither IgE nor IgG antibodies to protamine were determined in this case. The positive skin tests to protamine after the incident do not necessarily confirm the hypersensitivity to protamine and may only indicate previous exposure to protamine. In addition, a recent study has established a poor specificity of protamine skin tests. Intradermal injections of protamine with concentrations between 100 and 1,000 µg/ml might have been a nonreactive concentration, although Takenoshita et al. did not have control subjects to test. However, the recommended protamine test dose concentration is 1 µg/ml. In addition, out of the 11 patients taking neutral protamine Hagedorn insulin who had severe anaphylactoid reactions to protamine, only one of four patients studied by cutaneous testing had clearly positive results.

In summary, the case report identifies a patient with neutral protamine Hagedorn insulin-dependent diabetes mellitus who suffered a...
severe anaphylactoid reaction during open heart surgery probably caused by protamine. The findings of an elevated trypase and positive protamine skin tests remain inadequate to answer questions concerning the mechanism of this severe reaction.

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References


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Fiberoptic Tracheal Intubation Using a Nipple Guide

To the Editor.—Fiberoptic tracheal intubation of the infant may be assisted via a laryngeal mask airway (LMA), a standard mask, or a ventilating mask. Of these devices, only the LMA acts as an oropharyngeal laryngeal conduit, through which a flexible fiberoptic bronchoscope may be placed directly above the vocal cords. Unfortunately, the LMA is poorly tolerated by the awake infant. We describe an alternate device that facilitated fiberoptic bronchoscopic tracheal intubation of an infant with an unstable cervical spine who could not be safely anesthetized before intubation.

A 7-month-old premature infant with a history of bronchopulmonary dysplasia, apnea and bradycardia of prematurity, and chronic respiratory failure that required prolonged intubation was admitted with rapidly progressive upper extremity weakness. A magnetic resonance imaging (MRI) examination was indicated to rule out a space-occupying lesion that involved the spinal cord. The combination of the patient's medical history and his remote position while in the MRI scanner necessitated tracheal intubation with controlled ventilation. Because of his progressive paralysis, we were compelled to assume that his cervical spine was unstable, and that direct laryngoscopy might result in permanent neurologic damage. In summary, we encountered with a 7-month-old boy with an unstable cervical spine who could not sustain more than mild sedation for the fiberoptic placement of an endotracheal tube.

Fiberoptic bronchoscopy was performed in the operating room.