

CORRESPONDENCE

Anesthesiology
78:607, 1993
© 1993 American Society of Anesthesiologists, Inc.
J. B. Lippincott Company, Philadelphia

Atracurium Is Contraindicated in Patients with a Known Allergy to Drugs

To the Editor:—The publication on anaphylactoid reactions to propofol (Diprivan®) is very interesting, and I am in total agreement with the authors' opinion that the cases reported are noteworthy.^{1,2} I am surprised, however, that, although none of the patients cited in the case reports had received atracurium, the authors conclude that atracurium should not be used together with propofol in patients with a history of allergy to drugs.¹ The data supporting this statement are not present in these reports, and the logic as to whether atracurium is really more hazardous than vecuronium must be questioned. Histamine release by atracurium can be avoided by priming, reduction of dose, and by slow injection (30–60 s), whereas inhibition of the histamine-N-methyltransferase (HNMT) by vecuronium is not competitive and cannot be prevented.^{3,4} Consequently, histamine released by propofol or other drugs used for anesthesia will not be metabolized or its metabolism will be reduced because of the inhibition of HNMT. Further, it is very likely that not only plasma histamine is involved in causing bronchospasm. Histamine potentiates the effects of leukotrienes and prostacyclin, which are involved in the pathophysiology of bronchospasm by causing a considerable increase in pulmonary resistance. This may explain the occurrence of bronchospasm after propofol and steroidal muscle relaxants (vecuronium, pancuronium). Therefore, I do not agree with the conclusion drawn by the authors that propofol with atracurium has to be avoided in patients with a history of atopy.¹ Recent studies suggest that plasma expanders, opioids, induction agents, and surgical manipulation may induce low levels of histamine release in the majority of patients. Therefore, I have two suggestions that may be helpful in the management of patients with atopy: all drugs must be injected slowly,^{5,6} and prophylaxis with H1/H2-receptor antagonists should be considered.⁵⁻⁷

* Current address: Clinic of Anesthesiology, Ludwig Maximilian University of Munich, Pettenkoferstrasse 8a, D-8000 Munich 2, Germany.

Anesthesiology
78:607–609, 1993
© 1993 American Society of Anesthesiologists, Inc.
J. B. Lippincott Company, Philadelphia

In Reply:—In our concluding remarks, we suggested that propofol was contraindicated in patients who are already known to be allergic to muscle relaxants, *i.e.*, any muscle relaxant, and not just atracurium.¹ Indeed, among the 14 patients having had a life-threatening anaphylactoid reaction to propofol, four had specific antibodies to muscle relaxants (patients 3, 5, 11, and 13) and two had already suffered from an anaphylactic shock due to a muscle relaxant (patients 3 and 5). This is most certainly not due to chance. Since this paper was

Prof. Dr. Alfred Doenicke*
Visiting Professor
Department of Anesthesia and Critical Care
The University of Chicago
5841 South Maryland Avenue, Box 428
Chicago, Illinois 60637

References

1. Laxenaire MC, Mata-Bermjo E, Moneret-Vautrin DA, Guent JL: Life-threatening anaphylactoid reactions to propofol (Diprivan®). *ANESTHESIOLOGY* 77:275–280, 1992
2. De Leon-Cassasola OA, Weis A, Lema MJ: Anaphylaxis due to propofol. *ANESTHESIOLOGY* 77:384–386, 1992
3. Harle DG, Baldo BA, Fisher MM: Inhibition of histamine-N-methyltransferase by neuromuscular blocking drugs. *Agents Actions* 17:27–31, 1985
4. Futo J, Kupferberg JP, Moss J, Fahey MR, Cannon JE, Miller RD: Vecuronium inhibits histamine-N-methyltransferase. *ANESTHESIOLOGY* 69:92–96, 1988
5. Tryba M, Zevounou F, Zenz M: Prevention of histamine induced cardiovascular reactions during induction of anaesthesia following premedication with H1-+H2-antagonists. *Br J Anaesth* 58:578–582, 1986
6. Scott RPF, Savarese JJ, Basta SJ, Sunder N, Ali HH, Gargarian M, Gionfriddo M, Batson AG: Atracurium: Clinical strategies for preventing histamine release and attenuating the haemodynamic response. *Br J Anaesth* 57:550–553, 1985
7. Lorenz W, Doenicke A: H1-+H2-blockade: A prophylactic principle in anaesthesia and surgery against histamine-release responses of any degree of severity: Part I. *N Engl Reg Allergy Proc* 6:37–57, 1985

(Accepted for publication November 27, 1992.)

published, we have discovered in five other patients that the antibodies to the muscle relaxants, or, more accurately, the antibodies to the quaternary ammonium group, recognize the lecithin present within the lipid solvent of propofol.² This is why we believe that anti-quaternary ammonium IgE is a risk factor for an anaphylactic reaction to propofol.

We continue to believe that atracurium is more dangerous to use than vecuronium when combined with propofol, especially in atopic