

2. Kopman AF: Serum dTc and neuromuscular blockade in man (letter to the editor). *ANESTHESIOLOGY* 42:644, 1975.
3. Feldman SA: Serum dTc and neuromuscular blockade in man (letter to the editor). *ANESTHESIOLOGY* 42:644-645, 1975
4. Feldman SA, Tyrell MF: A new theory of the termination of action of the muscle relaxants. *Proc R Soc Med* 63:692-695, 1970
5. Paton WDM, Waud DR: The margin of safety of neuromuscular transmission. *J Physiol* 191:59-90, 1967
6. Waud DR: Pharmacological receptors. *Pharmacol Rev* 20:49-88, 1968
7. Waud BE, Cheng MC, Waud DR: Comparison of drug-receptor dissociation constants at the mammalian neuromuscular junction in the presence and absence of halothane. *J Pharmacol* 187:40-46, 1973

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Hypothermia

HALOTHANE, ETHER, AND PROFOUND HYPOTHERMIA Healthy adult mongrel dogs were studied to evaluate differences between two anesthetic techniques used during profound hypothermia in elective circulatory arrests. The animals were surface-cooled to 18 C and then subjected to 30 minutes of circulatory occlusion. Anesthesia was provided with either halothane or diethyl ether. In each group, the anesthetic was administered with either 100 per cent oxygen or 95 per cent oxygen-5 per cent CO₂. Normothermia was re-established by either surface or perfusion rewarming. All five animals receiving halothane-O₂ and perfusion rewarming developed motor disorders. Of ten dogs inhaling 95 per cent O₂-5 per cent CO₂ during rewarming (half the animals with surface and half with perfusion rewarming), only one had a motor disturbance post-operatively. Animals receiving diethyl ether anesthesia evidenced no motor disorder no matter what the technique of rewarming and regardless of whether CO₂ was added to the gas mixture. The authors conclude: 1) it is

mandatory to avoid respiratory alkalosis when deep hypothermia is accompanied by halothane anesthesia; 2) at least in this animal model, anesthesia with halothane is inferior to that provided by diethyl ether. (Sato S, and others: *A comparative study of the effect of carbon dioxide and perfusion rewarming on limited circulatory occlusion during surface hypothermia, under halothane and ether anesthesia*. *Ann Surg* 180:192-197, 1974.)

ABSTRACTER'S COMMENT: Does addition of carbon dioxide help by preventing the Bohr shift of the hemoglobin-dissociation curve or by increasing cerebral perfusion? Steward DJ, et al (Can Anaesth Soc J 21:15-22, 1974) report data on 25 infants operated upon with profound hypothermia. The anesthesia was halothane-N₂O; during cooling 5 per cent CO₂ was added to the inspired gas mixture. One patient (with a history of previous seizures) was neurologically intact after operation but became comatose in the late postoperative period. The other 24 infants had no neurologic difficulties.