

anesthetist. Of the three parameters we have discussed, twitch tension appears to be the most useful single index of the action of *d*-tubocurarine. (The effect of even one-mg doses could be detected in our study.) The ability to sustain tetanus and visual examination of posttetanic twitch tension are considerably less important, for reasons we have discussed.

References

1. Churchill-Davidson, H. C., and Wise, R. P.: Prevention, diagnosis and treatment of prolonged apnoea, *Brit. J. Anaesth.* 32: 384, 1960.
2. Katz, R. L., and Gissen, A. J.: Neuromuscular and electromyographic effects of halothane and its interaction with *d*-tubocurarine in man, *ANESTHESIOLOGY* 28: 564, 1967.
3. Katz, R. L.: Neuromuscular effects of diethyl ether and its interaction with succinylcholine and *d*-tubocurarine, *ANESTHESIOLOGY* 27: 52, 1966.
4. Katz, R. L.: Neuromuscular effects of *d*-tubocurarine, edrophonium, and neostigmine in man, *ANESTHESIOLOGY* 28: 327, 1967.
5. Sabawala, P. B., and Dillon, J. B.: Action of volatile anesthetics on human muscle preparation, *ANESTHESIOLOGY* 19: 587, 1958.
6. Gissen, A. J., Karis, J. H., and Nastuk, W. L.: Effect of halothane on neuromuscular transmission, *J.A.M.A.* 197: 770, 1966.
7. Karis, J. H., Gissen, A. J., and Nastuk, W. L.: Mode of action of diethyl ether in blocking

- neuromuscular transmission, *ANESTHESIOLOGY* 27: 42, 1966.
8. Ngai, S. H., Hanks, E. C., and Farhie, S. E.: Effects of anesthetics on neuromuscular transmission and somatic reflexes, *ANESTHESIOLOGY* 26: 162, 1965.
9. de Jong, R. H., Hershey, W. N., and Wagman, I. H.: Measurement of a spinal reflex response (H-reflex) during general anesthesia in man. Association between reflex depression and muscular relaxation, *ANESTHESIOLOGY* 28: 382, 1967.
10. Botelho, S. Y., and Cander, L.: Post-tetanic potentiation before and during ischemia in intact human skeletal muscle, *J. Appl. Physiol.* 6: 221, 1953.
11. de Jong, R. H., and Freund, F. G.: Characteristics of the neuromuscular block with succinylcholine and decamethonium in man, *ANESTHESIOLOGY* 28: 583, 1967.
12. Epstein, R. A., Wyte, S. R., Jackson, S. H., and Sitter, S.: The electromechanical response to stimulation by the Block-Aid monitor, *ANESTHESIOLOGY* 30: 43, 1969.
13. Heisterkamp, D. V., and Cohen, P. J.: Technical note concerning the Block-Aid monitor, *ANESTHESIOLOGY* 29: 1210, 1968.
14. Brown, G. L., and Burns, B. D.: Fatigue and neuromuscular block in mammalian skeletal muscle, *Proc. Roy. Soc. London, Ser. B* 136: 182, 1949-1950.
15. Katz, R. L.: Comparison of electrical and mechanical recording of spontaneous and evoked muscle activity. The clinical value of continuous recording as an aid to the rational use of muscle relaxants during anesthesia, *ANESTHESIOLOGY* 26: 204, 1965.

Drugs

MASSIVE HEPATIC NECROSIS This abstract is a summary of a clinicopathologic conference from Washington University School of Medicine. A 67-year-old woman underwent percutaneous translumbar aortography, followed seven days later by superficial femoral popliteal artery bypass, which was followed two weeks later by left femoral endarterectomy. For all operations, anesthesia consisted of halothane, nitrous oxide, oxygen and thiopental. Four days after the third operation, the patient became jaundiced. Despite treatment, the jaundice deepened; she became obtunded, oliguric, and hypotensive, and died 24 days later. Autopsy revealed lobar pneumonia, acute massive hepatic necrosis, renal tubular necrosis, and pneumococcal meningitis. The admonition is made to avoid a second use of halothane anesthesia in any patient exhibiting fever and jaundice after one exposure to halothane. In addition, repeated frequent exposure to halothane is not recommended. (*Clinicopathologic Conference: Massive Hepatic Necrosis Following Multiple Exposures to Halothane, Amer. J. Med.* 45: 589 (Oct.) 1968.)