CASE REPORT

Residual Curarization

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This case report illustrates that the neuromuscular effects of gallamine may persist for prolonged periods if renal function is impaired. Electromyographic studies performed five hours after anesthesia using gallamine, and reversal with neostigmine, revealed a persistent curare-type block.

The patient, a 61 year old woman with widespread arterial occlusive disease, underwent aorto-iliac reconstructive surgery requiring 11 hours. Nitrous oxide-oxygen-meperidine anesthesia with 48 mg. curare was used. The block was reversed with neostigmine at termination of anesthesia. Following operation, the patient was moderately hypotensive with a urinary output of 20 ml./hour. Because of continued intra-abdominal bleeding, the abdomen was re-explored 12 hours postoperatively under cyclopropane anesthesia with 120 mg. gallamine. This procedure required two hours. After reversal with 2.5 mg. neostigmine (adequacy of reversal demonstrated with a nerve stimulator), the patient was hypoventilating (arterial P_{CO_2} 55 mm. of mercury) apparently due to abdominal distention. Respiration was assisted with a mechanical ventilator. Urinary output was less than 10 ml./hour.

Electromyographic studies five hours after the second operation revealed the reappearance of a curare-type block, which was subsequently reversed with 2 mg. neostigmine (fig. 1). Thirty-six hours later the patient expired with massive retroperitoneal hemorrhage.

The effects of gallamine were present five hours after operation in spite of adequate reversal with neostigmine at the end of the procedure. Persistent effects of gallamine may reappear after the neostigmine effect has disappeared if renal function is impaired. This case suggests that gallamine should be used with caution in patients with impaired renal function and demonstrates the usefulness of electromyographic techniques in evaluating such patients.

A Model 302 electromyograph was made available for this study by the Meditron Company, El Monte, California.

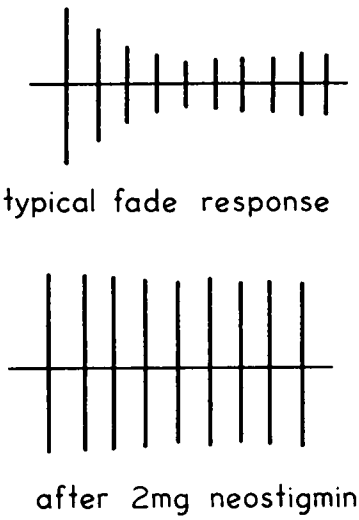

FIG. 1. Retouched photographs of muscle action potentials of M. abductor digiti quinti upon supramaximal stimulation of the ulnar nerve at a rate of 2 per second. Upper tracing shows the fade response of a nondepolarizing block, subsequently reversed with 2 mg. of neostigmine (lower tracing).

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