Anesthesiology
51:575, 1979

Reversal of Neuromuscular Blockade and Tricyclic Antidepressants

To the Editor:—In the interesting article by Edwards *et al.*,[1] an increased incidence of cardiac arrhythmias was shown to occur in chronic imipramine-treated dogs anesthetized with halothane and given pancuronium. Their experimental findings supported a prior clinical observation in which marked tachyarrhythmias followed pancuronium administration in two patients anesthetized with halothane. Both patients had been taking the tricyclic anti-depressant, imipramine, for prolonged periods. Based upon their results, the authors suggested that pancuronium and gallamine should probably be avoided in patients receiving tricyclic antidepressants who are anesthetized with halothane. *d*-Tubocurarine was suggested as an acceptable alternative, or the use of enflurane anesthesia with pancuronium, which, in their study, did not cause arrhythmias.

Although not mentioned by Edwards and co-workers, we believe that it is important to point out that reversal of neuromuscular blockade following prolonged tricyclic antidepressant therapy can also lead to electrocardiographic disturbances. Results of a study published by our group[2] demonstrated that minor ST-T wave and myocardial conduction changes observed in cats during chronic amitriptyline treatment (28 days) were, during chloralose anesthesia, markedly intensified during reversal of *d*-tubocurarine blockade with neostigmine alone, or with neostigmine and atropine mixed. Although the mechanisms involved could not be explained, it was thought that they were probably due to the effect of neostigmine on the heart,[3] coupled with the quinidine-like activity and direct action of tricyclic drugs on the myocardium.[4–6] Importantly, our study showed that 24 and 48 hours after the last dose of amitriptyline, reversal of *d*-tubocurarine with neostigmine did not produce the observed cardiac disturbances. It would be interesting to see whether the reported halothane–pancuronium-induced arrhythmias also disappear 24 to 48 hours after discontinuation of the tricyclic treatment. To conclude, Edwards *et al.*[1] suggested that pancuronium be given with caution to a patient receiving chronic tricyclic antidepressant therapy who is anesthetized with halothane. We would add that caution should also be employed when reversing neuromuscular blockade with neostigmine in these patients.

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(Accepted for publication July 12, 1979.)