

frequent reversion to vasodilatation at high dose levels. Responses to norepinephrine were always consistent regardless of dose. Some inconsistency is suggested in the hypothesis that ephedrine and tyramine act exclusively by norepinephrine release. (Cohn, J. M.: *Comparative Cardiovascular Effects of Tyramine, Ephedrine and Norepinephrine in Man*, *Circ. Res.* 16: 174 (Feb.) 1965.)

**EPINEPHRINE ARRHYTHMIA** Methoxyflurane 0.5 per cent and halothane 1.0 per cent in oxygen were administered to dogs for 30 minutes under controlled intermittent positive pressure respiration. Thereafter, epinephrine in doses of 10  $\mu\text{g./kg.}$  and 100  $\mu\text{g./kg.}$  was injected into the animal. The incidence of ventricular arrhythmias as a result of intravenous administration of epinephrine during methoxyflurane anesthesia was far lower and severity was milder in degree than during halothane anesthesia. Ventricular fibrillation could not be elicited from 10  $\mu\text{g./kg.}$  of epinephrine during the inhalation of 0.5 per cent methoxyflurane. Only one case of fibrillation was noted with 100  $\mu\text{g./kg.}$  of epinephrine, while in the case of 1 per cent halothane, ventricular fibrillation occurred quite frequently both with 10  $\mu\text{g./kg.}$  and 100  $\mu\text{g./kg.}$  of intravenous epinephrine. (Saito, T., and others: *Epinephrine Induced Cardiac Arrhythmias During Methoxyflurane and Halothane Anesthesia in Dogs* (Japanese), *Japanese J. Anesth.* 13: 347, 1964.)

**QUINIDINE** A 39 year old woman was subjected to two general anesthetics in one day, the combined duration of which was eight and one half hours. Curare had been antagonized with neostigmine and the patient was fully conscious with stable vital signs. Without the knowledge of the anesthetist, the patient was given two doses of 200 mg. of quinidine each. This led to severe respiratory depression, necessitating endotracheal intubation and artificial respiration. Effects were promptly antagonized by neostigmine. Quinidine prolongs the refractory period of muscle and decreases excitability of the myoneural junction. Quinidine can cause recurarization following use of tubocurarine. (Boere, L. A.:

*Recurarization Following Quinidine*, *Der Anaesthetist* 13: 368 (Nov.) 1964.)

**MORPHINE-LEVALLORPHAN** Levallorphan was administered to cats after 10 mg./kg. of morphine. The drowsy pattern in the hippocampus produced by morphine was converted to a hippocampal arousal wave by levallorphan with dosage ratios of 50 : 1 and 10 : 1. The threshold of arousal response, which was elevated by morphine, was lowered by levallorphan. When 10 mg. of morphine and 1.0 mg. of levallorphan (10 : 1) were used, the threshold of recruiting response elevated by morphine was lowered by levallorphan. However, when the splanchnic nerve was stimulated there was no evidence of antagonism between the two drugs. Morphine depressed the activity of the hippocampus, which belongs to the limbic system and is concerned with visceral sensation, while levallorphan seemed to have an opposite effect. (Aono, M.: *Electroencephalographic Study in Anaesthesia. I. Antagonistic Effect of Levallorphan Against Morphine* (Japanese) *Jap. J. Anesth.* 13: 103, 1964.)

**ANTIBIOTIC MUSCLE BLOCK** Effect of certain antibiotics was observed in studies on denervated tibial muscle of cats. A block at the endplate is produced by tetracycline, streptomycin, dihydrostreptomycin, viomycin and kanamycin. After a short period of competitive blockade initially, a prolonged depolarization occurs, simultaneously with calcium depletion. Administration of calcium antagonizes this effect better than prostigmine. (Kubikowski, J., and Szreniawski: *Mechanism of Neuromuscular Blockade by Antibiotics*, (French) *Arch. Int. Pharmacodyn.* 146: 549 (Dec.) 1963.)

**AMBENONIUM** Ambenonium chloride has a potent anticurare effect in man which is 4 to 5 times more powerful than that of neostigmine. Maximum effect occurs in 10 to 15 minutes. Duration of the anticurare effect of ambenonium chloride is several times longer than that of neostigmine, and there is less chance of recurarization. Some of the side effects observed with ambenonium chloride were excessive salivation and mild abdominal