

Postoperative Rhythm Disturbances, Thoraxchirurgie 17: 233 (June) 1969.)

VENTRICULAR FIBRILLATION The effect of helium on ventricular fibrillation after acute myocardial infarction was investigated in dogs. An inspired gas mixture of 50 per cent air, 30 per cent oxygen and 20 per cent helium prevented ventricular fibrillation in 15 dogs. In a second group ventilated with 20 per cent oxygen and 80 per cent helium, the incidence of ventricular fibrillation was 8 per cent. Each group was compared with a group of 22 control animals ventilated with room air, in which the incidence of ventricular fibrillation was 54 per cent. Although the precise mechanism of the protective effect of helium remains to be established, it may be related to a helium-induced increase in the blood supply to the ischemic area of myocardium. The potential clinical application of these preliminary observations, if substantiated, is obvious. (Pifarré, R., and others: *Helium in the Prevention of Ventricular Fibrillation*, *Dis. Chest* 56: 135 (Aug.) 1969.)

ARRHYTHMIA The effects of local anesthetics (lidocaine and tetracaine) and beta-adrenergic blocking agents (propranolol and quinidine) on calcium uptake by canine myocardial sarcoplasmic reticulum were compared. Local anesthetics had no effect, while the beta blockers decreased calcium uptake markedly. Both quinidine and propranolol depressed myocardial force-velocity relationships, while the local anesthetics, also potent antiarrhythmics, did not. One conclusion may be that the beta blockade or depression of the force-velocity curve is related to calcium uptake, while antiarrhythmic activity relates to effects on membrane polarization, a feature common to both local anesthetics and beta blockers. (Shinebourne, E., and others: *A Quantitative Distinction between the Beta-receptor-blocking and Local Anesthetic Actions of Antiarrhythmic Agents*, *Circ. Res.* 24: 835 (June) 1969.)

HYPERBARIC OXYGEN The effects of hyperbaric oxygen on myocardial oxygen metabolism and myocardial blood flow were

studied in normal dogs and dogs in hemorrhagic shock. In a control group (normal blood pressure), hyperbaric oxygen was associated with decreases in myocardial blood flow and myocardial oxygen consumption. In the shock group, hyperbaric oxygen did not change myocardial blood flow but increased myocardial oxygen consumption. In shocked animals that breathed room air, myocardial blood flow increased and there was no change in oxygen consumption. These results suggest that shock may induce a baseline myocardial blood flow, beyond which coronary vasculature is no longer responsive to hyperoxia. (Ratliff, N. B., and others: *Myocardial Oxygen Metabolism and Myocardial Blood Flow in Dogs in Hemorrhagic Shock*, *Circ. Res.* 24: 901 (June) 1969.)

CARDIAC TAMPONADE The effect of isoproterenol infusion on cardiac tamponade was evaluated in eight intact anesthetized dogs. With isoproterenol right atrial pressure increased from 1 to 12 mm Hg, and cardiac output decreased from 145 to 45 ml/kg/min and then increased to 106 ml/kg/min. Mean cardiac stroke volume decreased from 20 to 6 ml during tamponade and increased to 12 ml with isoproterenol. Heart rate increased from 193 beats/min during tamponade to 218 beats/min with isoproterenol. During isoproterenol infusion, mean right atrial pressure and mean pericardial pressure decreased significantly. With cardiac tamponade, mean blood pressure decreased from 158 to 126 mm Hg, but it did not change with isoproterenol. Eleven additional animals were studied with norepinephrine in a similar fashion. No consistent hemodynamic effects occurred until infusions of 2, 5, and 10 μ g/kg/min were reached, when cardiac output increased in some experiments. The increased stroke volume probably resulted from an increased ejection fraction with a greater decrease in end-systolic than end-diastolic ventricular volume. Such effects are consistent with the known positive inotropic, peripheral vasodilator, and positive chronotropic effects of isoproterenol. (Fowler, N. O., and Holmes, J. C.: *Hemodynamic Effects of Isoproterenol and Norepinephrine in Acute Cardiac Tamponade*, *J. Clin. Invest.* 48: 502 (March) 1969.)