

ACIDOSIS AND CARDIAC FUNCTION

Metabolic acidosis (pH 7.02) had no effect on left ventricular contractility in intact cats anesthetized with pentobarbital. Likewise, correction of acidemia with THAM had no effect upon ventricular performance. Acidosis induced in cats pretreated with propranolol resulted in a significant reduction in contractility, which was restored to near-control values by restoration of pH to normal. Sympathoadrenal activity apparently preserves ventricular function in the presence of severe metabolic acidemia. (Rocamora, J. M., and Downing, S. E.: *Preservation of Ventricular Function by Adrenergic Influences during Metabolic Acidosis in the Cat*, *Circ. Res.* 24: 373 (March) 1969.)

CAROTID SINUS REFLEX The reflex effects of carotid sinus stimulation on the dog heart result primarily from inhibition of sympathetic activity rather than from stimulation of parasympathetic discharge, as has been traditionally taught. Carotid sinus stimulation produced similar degrees of cardiac slowing before and after bilateral cervical vagotomy, but subsequent sympathetic blockade with propranolol abolished the reflex bradycardia. Bilateral surgical sympathectomy in dogs with intact vagi blocked the reflex tachycardia produced by carotid artery occlusion and blocked the bradycardia of carotid sinus stimulation. Subsequent vagotomy had little additional effect. The prolongation of A-V conduction produced by carotid sinus stimulation in electrically-paced hearts was not altered by vagotomy but was abolished by propranolol and/or surgical sympathectomy. (Berkowitz, W. D., and others: *Relative Roles of Sympathetic and Parasympathetic Nervous Systems in Carotid Sinus Reflex in Dogs*, *Circ. Res.* 24: 447 (March) 1969.)

HEMORRHAGIC SHOCK A microscopic study of mesenteric blood flow in dogs as affected by a standard blood loss and two drugs, phenoxybenzamine and epinephrine, was made. Phenoxybenzamine reduced the constriction of arterioles and improved capillary microcirculation in hemorrhagic shock. Epinephrine produced constriction of the arterioles, increased aggregation with sludging in venules, and diminished capillary microcirculation. The best

microcirculatory response in hemorrhagic shock was seen when epinephrine was preceded by phenoxybenzamine. (Matsumoto, T., and others: *Experimental Hemorrhagic Shock: I. Pharmacologic Effect of Phenoxybenzamine and Epinephrine on the Small Vessels and Microcirculation*, *Milit. Med.* 134: 177 (March) 1969.)

RBC AND PLASMA VOLUME Erythrocyte volume, plasma volume, hematocrit, lean body mass (derived from total body water), skinfold thickness, arm circumference, height and weight were measured in 40 normal male, 38 normal female and 12 obese female subjects. These data were utilized to derive equations for estimating erythrocyte and plasma volumes. The most accurate estimations of erythrocyte and plasma volumes were obtained from combined height-weight, surface area, height-weight-skinfold thickness or lean body mass. Additional derivations included the significance of the body:venous hematocrit ratio, the variability of this ratio, and indirect estimates of blood volumes and sources of error based on this relationship. Tables and a nomogram based on these equations are available upon request from the authors. (Retzlaff, J. H., and others: *Erythrocyte Volume, Plasma Volume, and Lean Body Mass in Adult Men and Women*, *Blood* 33: 649 (May) 1969.)

MASSIVE BLOOD TRANSFUSION Operating room mortality was 11 per cent among 91 consecutive patients who received 20 or more units of bank blood rapidly during surgery. The three main factors responsible for these results were warming of the cold bank blood to body temperature, deletion of calcium therapy, and administration of sodium bicarbonate. Before these factors were instituted, the mortality rate was 30 per cent. Although patients anesthetized with diethyl ether were older, received more blood and were poorer anesthetic risks, statistical analysis showed that they had a better chance of immediate survival than those anesthetized with halothane. (Boyan, C. P., and Howland, W. S.: *Immediate and Delayed Mortality Associated with Massive Blood Transfusions*, *Surg. Clin. N. Amer.* 49: 217 (April) 1969.)