

of total body cooling in (1) bacteremic shock (reduction in need for oxygen in the cellular processes and reduction of bacterial growth); (2) in traumatic shock, where hypothermia will protect experimental animals, enabling tolerances (increased *g*-forces) up to 2,300 *g*'s to be maintained up to 15 minutes; (3) in dysbarism; (4) in gamma and cosmic ray exposure, thus giving protection to an astronaut if solar flares were encountered, or during the period of entrance into the Van Allen Belt. There are some disadvantages of hypothermia, and it is recognized that profound hypothermia is a stressful modality. During cooling into the intermediate range (20–26° C.), cardiac arrhythmias may be encountered, and metabolic acidosis usually arises with chronic and profound hypothermia. Hibernation (4° C.), however, is a nonstressful modality, and a simulated condition resembling hibernation will probably be a biomedical solution to some manned space problems. The great advantage of reduction in cellular metabolism provided by simulated hibernation probably far outweighs its disadvantages. (Cockett, T. K., and Beehler, C. C.: *Protective Effects of Hypothermia in Explorations of Space*, *J.A.M.A.* 182: 977 (Dec. 8) 1962.)

VASOPRESSORS Pulmonary blood pressure was measured in dogs during continuous infusions with different vasopressors. Pulmonary artery pressure was consistently raised by the pressor drugs. Hypertensine, norepinephrine and ethyladrianol caused elevation of pulmonary artery pressure synchronous with elevation of systemic arterial pressure. During epinephrine infusions, increase of pulmonary artery pressure occurred before systemic pressure rose. After the infusions had been discontinued, hypertensine, epinephrine and norepinephrine caused the pulmonary artery pressure to remain elevated longer than systemic pressure. (Rittmeyer, P.: *Effect of Vasopressor Substances on the Minor Circulation*, *Der Anaesthetist* 11: 359 (Nov.) 1962.)

ANALGESICS AND EEG Pain impulses have been thought to be confined to channels in the spinothalamic tracts. It has recently been shown that pain stimuli evoke potentials in multiple pathways of the midbrain. Mor-

phine and meperidine selectively depress the peripheral areas of the midbrain. Nitrous oxide, ether, and pentobarbital preferentially affect the medial pathways of the ascending reticular system, causing changes in consciousness other than analgesia. (McKenzie, J. S., and Beechey, N. R.: *Effects of Morphine and Pethidine on Somatic Evoked Responses in the Midbrain of the Cat*, *Electroenceph. Clin. Neurophysiol.* 14: 501 (Aug. 1962.)

AUTONOMIC INHIBITION During a control study, exercise resulting in a four- to fivefold increase in oxygen consumption produced average increases above resting values of 68 per cent in heart rate, 17 per cent in stroke volume index, 96 per cent in cardiac index and 129 per cent in left ventricular minute work. After combined administration of atropine and guanethidine identical exercise resulted in average increases above resting values of 28 per cent in heart rate, 1 per cent in stroke volume, 30 per cent in cardiac index, and 5 per cent in left ventricular minute work. Blockade of the parasympathetic nervous system alone elevated the heart rate, cardiac index, and left ventricular minute work at rest and did not interfere with circulatory response to exercise. Guanethidine slowed the resting heart rate, but did not affect cardiac output or arterial pressure at rest. Cardiac index, mean arterial pressure, and left ventricular work during exercise were lower after guanethidine than during the control study. These studies demonstrate the important contribution made by the autonomic nervous system to the circulatory response to exercise in man and indicate that the sympathetic division plays the major role. (Kahler, R. L., Gaffney, T. E., and Braunwald, E.: *Effects of Autonomic Nervous System Inhibition on the Circulatory Response to Muscular Exercise*, *J. Clin. Invest.* 41: 1981 (Nov.) 1962.)

ECG IN HYPOPITUITARISM Characteristic electrocardiographic changes were observed in 20 patients with hypopituitarism and the expected associated hypothyroidism and hypoadrenalism. These changes (low QRS voltage, flattened or inverted T waves, ST depression in left precordial leads, and Q-T prolongation) responded promptly to treatment