

metabolic acidosis. The liver is able to eliminate the excess lactate produced by peripheral muscle if both are at the same temperature. If the liver is cooler than the muscle, excess lactate accumulates, contributing to metabolic acidosis. The technique of isothermia does not compromise circulation as does the surface cooling technique alone. (Wolfson, S. K., and others: *Isothermic Technique For Profound Hypothermia and its Effect on Metabolic Acidosis*, *J. Thor. Cardio. Surg.* 45: 466 (Apr.) 1963.)

HYPOTHERMIA Six patients out of thirteen received hydrochloric acid intravenously to reduce pH during perfusion-induced hypothermia followed by an equivalent amount of sodium bicarbonate during rewarming. There was no statistical difference in the rise of lactate or "excess" lactate as long as perfusion was adequate. (Ogata, T., and others: *Metabolic Changes in Deep Perfusion Hypothermia for Cardiac Surgery*, *J. Thor. Cardio. Surg.* 45: 610 (May) 1963.)

DEEP HYPOTHERMIA Hypothermia below 20° C. was induced by immersion. Moderate hypothermia was used for major general, thoracic and neuro-surgery. Temperatures below 25° C. were used in 65 cases of open heart surgery. Safe circulatory occlusion is possible for 10 minutes at 30°, for 20 minutes at 27°, for 30 minutes at 25° and for 60 minutes at 20°. Artificial coronary perfusion was unnecessary during deep hypothermia and, therefore, a completely dry field could be obtained. (Seta, K. K., Yonezawa, T., and Okamura, H.: *Use of Deep Hypothermia in Thoracic Surgery*, *Der Anesthesist* 12: 107 (Apr.) 1963.)

BRAIN COOLING Electroencephalographic changes occur with hypothermia, and are different with systemic as compared with local cooling. When the whole animal is cooled, the electrical activity of the cerebral cortex decreases. When the brain surface is cooled below body temperature, the sensory evoked potential is increased in amplitude and duration, and the discharge of unitary spikes is augmented. All changes are reversed by rewarming. (Bindman, L. J., Lippold, O. C. J.,

and Redfearn, J. W. T.: *Comparison of the Effects on Electrocortical Activity of General Body Cooling and Local Cooling of the Surface of the Brain*, *Electroenceph. Clin. Neurophysiol.* 15: 238 (Apr.) 1963.)

DEXTRAN Following profound hypothermia (10° C. esophageal) and 15 to 60 minutes of circulatory arrest in dogs, multiple focal areas of necrosis developed in the gray and white matter of brains. Such areas were related to the presence of blood in the brains during experimental conditions. If dextran is injected into the common carotid artery immediately after arresting the circulation, the number and size of cerebral necrotic areas are markedly reduced. Systemic injection of dextran also prevented brain damage. No cerebral necrosis due to exhaustion of metabolites or to profound hypothermia occurred without circulatory arrest. (Edmunds, L. H., and others: *Prevention of Brain Damage During Profound Hypothermia and Circulatory Arrest*, *Ann. Surg.* 157: 637 (Apr.) 1963.)

PROPHYLACTIC DIGITALIS Review of the recent experimental and clinical evidence on the pharmacologic effects of digitalis leads to the conclusion that the drug acts by a positive inotropic action on all types of muscle. This results in increased myocardial contraction, cardiac output and arteriolar pressure, and a drop in right atrial pressure and with splanchnic blood trapping. These changes occur alike in both normal and failing hearts, although there is a quantitative difference. A salutary effect on cardiac arrhythmias in failing hearts results through improved myocardial function. There is no convincing evidence that the long-held objection to its use in the non-failing heart, based on a reduced cardiac output, has any basis in fact. Any such output reduction is fleeting and of no clinical importance. Conversely, there is increasing evidence to suggest its prophylactic use in any heart in which severe stress is anticipated. Toxic effects can be avoided by slow oral administration, reserving rapid digitalization for emergency situations. Digitalization is recommended preoperatively in elderly patients, patients with known heart disease, or patients undergoing