

was greater than after operation alone. (MacPhee, I. W., Gray, T. C., and Davies, S.: *Effect of Hypothermia on Adrenocortical Response to Operation*, *Lancet* 2: 1196 (Dec. 6) 1958.)

REFLEXES DURING HYPOTHERMIA

Sympathetic and parasympathetic reflexes affecting the circulatory system were studied in dogs anesthetized with pentobarbital. The effect of hypothermia to 25 C. upon these reflexes was studied. Sympathetic and parasympathetic reflexes begin to be depressed at about 28 C., and become more consistent and severe below this temperature. Parasympathetic responses appear to be affected sooner. Sympathetic reflexes as manifested by vasomotor tone, return to normal upon rewarming. On the other hand, parasympathetic reflexes do not consistently return to normal levels upon rewarming. The results of this study lend support to the recommendation that patients should not be electively cooled below 28 C. for cardiac surgery. (Blair, E., and Martin, L.: *Hemodynamic Effects of Total Circulatory Occlusion During Hypothermia*, *Surg. Gynec. & Obst.* 108: 13 (Jan.) 1959.)

PERFUSION Studies were made in a series of 49 dogs perfused for 30 minutes with a "bubble-type" oxygenator. Low perfusion flows averaging 32.5 cc./kg./minute resulted in hypoxia, low perfusion pressure, metabolic acidosis and a high mortality chiefly from ventricular fibrillation and irreversible central nervous system damage. Bicarbonate perfusion controlled the acidosis but not the high mortality. Medium perfusion flows, averaging 59.8 cc./kg./minute, did not produce hypoxia and perfusion pressure was near normal. Metabolic acidosis was less severe and survival of animals was satisfactory. Full flow perfusion resulted in no hypoxia and only insignificant acidosis. Hemolysis was moderate but with no relation to rate of perfusion. Perfusion flows 50 per cent or less of the resting cardiac output should be avoided. (Bell, A. L., and others: *Influence of Rate of Perfusion on Physiologic Responses During Cardiac Bypass*, *Ann. Surg.* 148: 968 (Dec.) 1958.)

DISPOSABLE OXYGENATOR A new inexpensive, disposable oxygenator is essentially

a vertical screen made up of aluminum window screening and a case of cast vinyl film. In a series of 10 dogs, the flow rates, systemic blood pressure and arterial and venous oxygen saturations were maintained near normal during total cardio-pulmonary bypass. Despite normal flow rates, metabolic acidosis occurred in all dogs. Hematocrit and plasma hemoglobin values did not change adversely. Advantages over existing types of oxygenator are: (1) low cost, (2) entire unit readily sterilized by autoclaving, and (3) adaptability to existing pump systems where normal blood flows are not employed. (Diettert, G. A. and others: *Disposable Screen Oxygenator*, *Ann. Surg.* 148: 959 (Dec.) 1958.)

CARDIAC BYPASS An extracorporeal circulation technique in which both sides of the heart are bypassed, but in which the patient's own lungs are used for oxygenation has been developed. Prolonged bypass is permissible, since it is the oxygenator of older systems rather than the pumps which causes most of the damage to the blood elements. (Bailey, C. P., and Zimmerman, J.: *Surgical Correction of Aortic Regurgitation*, *Am. J. Card.* 3: 6 (Jan.) 1959.)

EEG DURING CARDIAC BYPASS The electroencephalographic pattern was used as an aid to determine the depth of anesthesia during cardiac bypass in 25 patients. Reduction of cortical electrical activity during or following cardiac bypass indicates a poor prognosis. Good electrical activity does not guarantee a normal postoperative electroencephalogram. (Kavan, E. M., and others: *Electroencephalographic Patterns During Intracardiac Surgery Using Cardio-pulmonary Bypass*, *A.M.A. Arch. Surg.* 78: 151 (Jan.) 1959.)

CLOTTING DEVIATION The clotting mechanism during open heart surgery under hypothermia was evaluated by comparing certain tests at 28 C. and 37 C. These tests included recalcification time, prothrombin consumption, prothrombin activity, thrombin time, fibrinolysis, and thrombelastography. The recalcification time and prothrombin consumption were not impaired. Clotting appears to be as complete at 28 C. as at 37 C. Patients