

The changes in the vascular reflexes preceded the fall of arterial pressure. The study of vascular reflexes in experiments on animals appears to be a more delicate method of functional analysis than the generally accepted evaluation of the condition of the animal according to the level of the arterial pressure. (Sherashov, S. G.: *Some Peculiarities of Reflex Regulation of Blood Circulation and Breathing in Surgical Shock*, *Arkh. pat.* 18: 70, 1956.)

VISCERO-CARDIAC REFLEX When irritation was applied to two internal organs simultaneously, the frog's heart was reflexly inhibited, whereas separate stimulation of either organ had an excitatory effect on the heart action. This demonstrates the absence of a specific afferent path and supports the postulate that the character of the viscerocardiac reflex depends upon the amount of excitation in the afferent paths. These experiments prove the absence of a specific stimulant path in the vagus nerves. Increase of stimulus to the internal organs causes excitation of additional fibres of the vagus nerve and reflex inhibition of the heart. (Yasrebtsova, N. L., and Udelnov, M. G.: *Reflex changes in Activity of Heart Following Simultaneous Irritation of Various Internal Organs*, *Collection "Problems of Pathology and Physiology of the Heart"* (Moscow), pp. 140-149, 1955.)

HEART BLOCK Anesthetic and surgical factors leading to circulatory arrest during operation in 22 patients with complete heart block were analyzed. Five of the 6 patients who developed circulatory and respiratory arrest during anesthesia had had prior Adams-Stokes attacks. In preparation for operation drugs should be used which have been successful in preventing or alleviating prior attacks—epinephrine, isopropylarterenol, sodium lactate, atropine. An artificial external pacemaker should be applied before the start of anesthesia. Anesthetic agents chosen should be suitable for the operation and the agents with which the anesthetist is most familiar. Cardiac arrest in these patients is different from the common arrest and thoracotomy should be per-

formed only when the measures outlined have failed. (Vandam, L. D., and McLemore, G. A., Jr.: *Circulatory Arrest in Patients with Complete Heart Block During Anesthesia and Surgery*, *Ann. Int. Med.* 47: 518 (Sept.) 1957.)

CARDIAC ARREST There is both theoretical and practical evidence to support the belief that artificial respiration in a manner similar to the Silvester method, without the arms extended over the head, and with the aid of positive pressure oxygen at the end of leg extension, should be tried when unexpected respiratory failure in a child is followed by cardiac arrest. This should be carried out for one and one-half minutes before proceeding to thoracotomy, as there is a good chance the latter may prove unnecessary. (Rainer, E. H., and Bullough, J.: *Respiratory and Cardiac Arrest During Anesthesia in Children*, *Brit. M. J.* 1: 1024 (Nov. 2) 1957.)

CARDIAC ARREST Elective cardiac arrest was effected in 73 operations using a potassium citrate blood mixture. The mixture was made of 2 cc. of 25 per cent potassium citrate added to 18 cc. of heparinized blood. In children 6 to 20 cc. were needed and some adults required 150 to 200 cc. of the mixture. In 2 patients the heart could not be resuscitated. The reasons for failure to resuscitate the heart include inadequate blood flow from the pump, faulty cannulation, coronary air emboli, and occlusion of a major coronary vessel. (Effler, D., and others: *Elective Cardiac Arrest—Adjunct to Open-Heart Surgery*, *J. Thoracic Surg.* 31: 500 (Oct.) 1957.)

CARDIAC ARREST A new method is presented for inducing cardiac arrest as an adjunct for intra-cardiac operations. It consists essentially of the perfusion of the coronary system with acetylcholine solution—the dose being 10 mg. per kg. of body weight of the commercial preparation Acetylcholine, Anglo-French Laboratories. The rate of perfusion varies from 30 cc./minute/kg. to 50-60 cc./minute/kg. Resuscitation of the heart is readily obtained by perfusion of the coronary arteries with oxygenated blood

from a pump-oxygenator system. Studies were made on 80 surgical procedures—54 were for interventricular septal defects and 26 for various congenital and acquired lesions of the heart. The use of the acetylcholine method for cardiac arrest proved very valuable in the complicated cardiac operations. (*Lam, C. R., and others: Clinical Experiences with Induced Cardiac Arrest During Intracardiac Surgical Procedures, Ann. Surg. 146: 439 (Sept.) 1957.*)

VENTRICULAR FIBRILLATION

Maximum vulnerability of the dog heart to stimuli which may produce ventricular fibrillation is in the final 30 to 90 milliseconds of systole. This period coincides with the T wave of the electrocardiogram. A current in milliamperes which caused a fibrillation of at least 2 seconds was designated threshold strength. Thresholds are reduced during coronary occlusion but only over the infarct area. These thresholds return to normal when the occlusion is released. The right ventricle is more susceptible than the left, and the posterior surface of the left is more susceptible than the anterior surface. (*Shumway, N. E., Johnson, J. A., and Stesh, R. J.: Study of Ventricular Fibrillation by Threshold Determinations, J. Thoracic Surg. 34: 643 (Nov.) 1957.*)

AFIBRINOGENEMIA

A 37-year-old woman with a missed abortion underwent a surgical evacuation of the uterus with subsequent hemorrhage and shock. Dextran, blood and fibrinogen failed to ameliorate the condition and a hysterectomy was performed. (*Charles, D.: Incoagulable Blood Syndrome and Missed Abortion, Obst. & Gynec. 10: 418 (Oct.) 1957.*)

MYOCARDIAL FIBROSIS

Eleven patients are presented: 4 with a biventricular type and 7 with a predominant left ventricular fibrosis. Either type can lead to low-output heart failure. The hemodynamic defect is interference with diastolic filling and probably systolic emptying of the heart. Constrictive pericarditis and endocardial fibroelastosis show similar hemodynamic changes and clinical signs and symptoms. (*Robin, E. D., and Bur-*

well, C. S.: Hemodynamic Aspects of Diffuse Myocardial Fibrosis, Circulation 16: 730 (Nov.) 1957.)

AIR EMBOLISM

Small amounts of air in the left atrium result in fatal coronary air embolism. Air, 0.5 cc./kg. of body weight, injected into the left atrium, and 0.5 cc. to 1.5 cc. injected in the left ventricle were usually fatal. Air in the common carotid of dogs is tolerated better; 1.0 cc./kg. caused no deaths or cerebral damage in 80 per cent of the animals. However, 8 cc./kg., injected in the descending aorta causes death by coronary air embolism or air in the right atrium and right ventricle. (*Benjamin, R. B., Turbak, C. E., and Lewis, F. J.: Effects of Air Embolism in Systemic Circulation and its Prevention During Open Cardiac Surgery, J. Thoracic Surg. 34: 548 (Oct.) 1957.*)

HYPOTHERMIA

Blood pressure was little changed and vasoconstriction did not occur in response to whole body hypothermia in the rat and hamster. Linear velocity decreased and blood viscosity increased, sometimes to the point of no flow. Blood flow shifts by arterial narrowing probably occur only in response to local cooling. (*Lynch, H. F., and Adolph, E. F.: Blood Flow in Small Blood Vessels During Deep Hypothermia, J. Appl. Physiol. 11: 192 (Sept.) 1957.*)

HYPOTHERMIA

Modifications in the technique of hypothermia were concerned with (1) rewarming, (2) ventricular irritability, and (3) increased bleeding tendency. Metabolic acidosis was corrected by modifying the anesthetic technique. All shivering was controlled by the use of chlorpromazine, promethazine, and meperidine. Respiratory alkalosis during cooling was avoided. Data revealed that heparinized blood was superior to citrated blood for transfusion during hypothermia. Such blood has apparently reduced the incidence of irreversible ventricular fibrillation. (*Woddell, W. G., Fairley, H. B., and Bigelow, W. G.: Improved Management of Clinical Hypothermia Based Upon Related Biochemical*