

tent. "Satiated" blood possesses a greater stimulating and vasoconstricting action than blood drawn during fasting. The effect of ordinary stored blood was studied in 40 cases and of "satiated" blood in 70 cases. The author's findings confirm the safety and effectiveness of "satiated" blood transfusions. (Ulmanis Ya. L.: *Preliminary Data from Study of Effect of "Satiated" Blood in Surgical Practice*, Probl. Gematol. Perel. Krovi 1: 58, 1956.)

**BRAIN METABOLISM** The metabolism of the brain was investigated *in situ* by isolating the circulation of the cat's brain and perfusing it with a "simplified blood." Anatomically, the cerebral blood flow and oxygen consumption was significantly reduced by severing the cervical spinal cord, medulla, or midbrain; and increased by electrical stimulation of part of the posterior hypothalamus or the reticular formation. When the whole brain was stimulated by electric shock, cerebral blood flow increased. If this blood were re-equilibrated with the original gas mixture so that the normal  $\text{CO}_2$  and  $\text{O}_2$  tension was restored and then allowed to recirculate through the quiescent brain, the cerebral vascular resistance again fell. This indicates that chemical substances produced by brain metabolism other than  $\text{CO}_2$  may also serve as vasodilators during activity. These are probably metabolic products derived from non-carbohydrate substrates. The increase in cerebral blood flow and  $\text{O}_2$  consumption elicited by stimulating the posterior hypothalamus is probably also mediated by chemical substances produced through activation of a large number of neurons in the whole brain. Saturation of the perfusion blood with 10 per cent  $\text{CO}_2$  reduced the vascular resistance in the brain by 30-50 per cent, and at the same time, increased the systemic blood pressure by 50-80 per cent. When the pH of the blood was varied but the  $\text{HCO}_3$  content kept constant, oxygen consumption was maximal at pH 7.25. If the pH were kept constant at 7.3 and the  $\text{HCO}_3$  ion increased, blood flow, oxygen consumption and excitability were decreased. (Geiger, A.: *Correlation of Brain Metabolism and Function by Use of Brain Perfusion Method In Situ*, *Physiol. Rev.* 38: 1 (Jan.) 1958.)

**BLOOD REPLACEMENT** The American Association of Blood Banks has inaugurated a plan whereby the donation of one pint of blood purchases for the subscriber as much processed blood as he may need for the next four years, no matter where he happens to be in this country. Widespread use of this plan should greatly help in securing the estimated 5,000,000 transfusions to be administered this year. (*Mod. Hosp.* 89: 51 (Dec.) 1957.)

**WATER METABOLISM** Most patients in the first 36 hours after cardiac operations excreted mainly obligatory urine water which is evidence of antidiuresis during this time. Such patients would tolerate poorly a large water load. Thirst is a striking and unreliable symptom. Change in daily body weight is the simplest, most nearly accurate and most informative method of evaluating water balance. The average obligatory water losses were about 500, 750 and 750 ml. per  $\text{M}^2$  of body surface per day on the 1st, 2nd, and 3rd post-operative days respectively. (Sturtz, G. S., and others: *Water Metabolism after Cardiac Operation Involving Gibbon-Type Pump-Oxygenator. I. Daily Water Metabolism, Obligatory Water Losses and Requirements*. *Circulation* 16: 988 (Dec.) 1957.)

**CARDIOVASCULAR SURGERY** Any excessive positive pressure is undesirable in a patient already suffering from a poor pulmonary circulation. For this reason the author does not use a respirator in anesthesia for cardiovascular surgery. A diminished pulmonary circulation will also produce a slowing in the time of uptake and exchange of anesthetic gases, and, therefore, only the rapidly acting gases should be used. Because ether does not satisfy this requirement, and also because ether increases hemoconcentration, the use of this agent has been discontinued and cyclopropane is now considered to be the anesthetic agent of choice. The use of drugs such as procaine, quinidine, etc.—apart from those used for the treatment of cardiac arrest—is avoided during operation. After the thorax is opened, blockage of the vagus on the same side as the operation is carried out with local anesthesia.

A number of patent ductus cases have been operated upon under induced hypotension, and some of the poorest risk patients in this group as well as in the atrial septal defect group have undergone hypothermia. Induced hypotension is of great value in cases of coarctation of the aorta, blood pressure being maintained around 100 mm. Hg during the entire operation. An inadvertent fall in blood pressure is tolerated badly during cardiac surgery, especially when the cardiac reserve is small, but if possible the use of drugs is avoided in the treatment of this condition. Suspension of the operation and gentle inflation of the lungs usually constitutes adequate therapy. If cardiac arrest occurs where valvular stenosis is present, completion of the valvulotomy is essential before any other treatment is attempted. (Secher, Ole: *Problems of Anaesthesia in Relation to Cardiovascular Surgery*, *Proc. Roy. Soc. Med.* 50: 933 (Nov.) 1957.)

**OPEN-HEART SURGERY** Two serious complications associated with intracardiac surgery are bronchial hypersecretion and persistent heart block. Bronchial hypersecretion is frequently associated with pulmonary hypertension. Preoperative tracheotomy, and postoperative employment of a Bennett partial assistance respirator help in control of this problem. Isuprel has aided greatly in the treatment of persistent heart block. When block persists at operation in spite of Isuprel administration, an electrode has been sutured into the right ventricle myocardium and connected to an electrical cardiac pacemaker which maintains a ventricular rate of 100 to 110 during the critical postoperative period. (Allen, P.: *Some Basic Features of Open-heart Surgery Using Bubble Oxygenator*, *Canad. M. A. J.* 77: 1125 (Dec. 15) 1957.)

**CARDIO-VASCULAR SURGERY** In pericardectomies with the use of a unilateral flap incision, local analgesia is to be preferred, but if the trans-bipectoral approach is used intratracheal anaesthesia is preferable. The majority of the mitral stenosis operations were performed under intratracheal anaesthesia. In patients with cyanotic heart disease the use of hypothermia is indicated because of the depres-

sion of all oxidative processes. In operations performed for portal hypertension the author's method of choice is peridural analgesia. To combat the pain in the post-operative period the author recommends the use of novacaine-alcohol block of the intercostal nerve area in combination with hypodermic administration of morphia in moderate dosage. (Uglov, F. G.: *Some Problems of Cardio-Vascular Surgery*, *Vestn. Khir.* 7: 3, 1956.)

**HEART SURGERY** In operations for adhesive pericarditis local analgesia is recommended and if a bilateral pneumothorax should develop, intratracheal anaesthesia with controlled respiration. To lessen the hypoxemia, barbiturates and curare-like substances followed by ether-oxygen anaesthesia are administered. In cyanotic heart disease hypothermia gives good results. Ninety-six operations upon the heart and pericardium were performed: 10 (no mortality) under local analgesia, 58 (3 deaths) under combined anaesthesia, and 28 (8 deaths) under hypothermia. The correct administration of the indicated method of anaesthesia has a great influence on the outcome of the operation. (Uglov, F. G., and others: *Anaesthesia for Operations on Heart and Pericardium*, *Vestn. Khir.* 10: 3 1956.)

**OPEN CARDIAC SURGERY** Metabolic studies on 120 patients undergoing total body perfusion by means of a bubble oxygenator during open intracardiac procedures have been made. At termination of bypass, arterial pH values for all acyanotic patients were within the normal range, while in cyanotic patients the arterial pH remained at the control level—somewhat acidotic. However, in these latter patients the preoperative acidotic states were corrected to normal levels 18 hours after surgical repair. A depression of the patients' plasma bicarbonate levels after perfusion was observed in all cases, but this depression was of no greater magnitude than has been observed in surgical patients undergoing minor procedures. Serum potassium levels in the acyanotic patients declined during perfusion, decreased considerably in the immediate postoperative period and then returned to normal within