

of the respiratory centers which further aggravates the hypoventilation. In addition, congestive heart failure may be present, and usually there is a severe systemic hypertension. Adequate reduction of weight is accompanied by complete disappearance of this cardiorespiratory syndrome. (Lillington, G. A., Anderson, M. W., and Brandenburg, R. O.: *Cardiorespiratory Dysfunction and Polycythemia in Patients with Extreme Obesity, Proc. Staff Meet. Mayo Clin.* 32: 585 (Oct. 16) 1957.)

**RESUSCITATION** Employing a mask suitable for use in contaminated atmospheres, expired air resuscitation was evaluated in 16 anesthetized curarized human subjects. Alveolar carbon dioxide and oxygen concentration of both operator and subject, the air flow and tidal volume, each subject's arterial oxygenation by ear oximeter, and each subject's arterial oxygen saturation, carbon dioxide tension and pH were maintained within normal limits. Moderate hyperventilation by the donor increases his expired oxygen concentration and lowers his expired carbon dioxide concentration to provide a gas having a composition satisfactory for artificial ventilation. (Greene, D. G., and others: *Expired Air Resuscitation in Paralyzed Human Subjects, J. Appl. Physiol.* 11: 313 (Sept.) 1957.)

**COST OF RESPIRATION** By measuring oxygen consumption when dead space was increased it was possible to measure the efficiency of the muscles of breathing. In the normal subject the oxygen cost of breathing was about 0.25 ml. oxygen per liter of ventilation up to ventilations of 40 l./minute, while at a ventilation of 80 l./minute it was approximately 0.6 ml./l. In the patient with emphysema the respiratory muscles were consuming between 2 to 3 ml./l. at a ventilation of 10 l./minute and the consumption per liter increased markedly with slight increases of ventilation. (Campbell, E. J. M., Westlake, E. K., and Cherniack, R. M.: *Simple Methods of Estimating Oxygen Consumption and Efficiency of Muscles of Breathing, J. Appl. Physiol.* 11: 303 (Sept.) 1957.)

**POTASSIUM ALTERATIONS** Plasma potassium levels remained unaltered during normocapnia and moderate hypercapnia (pH 7.19, mean arterial blood carbon dioxide tension, 73.2 mm. Hg). A statistically significant decrease in plasma potassium was noted in hypocapnia. Plasma potassium tended to rise during the post hypercapnic carbon dioxide washout. (Petersen, B. D., and others: *Influence of Alterations in Arterial Blood pH and Carbon Dioxide Tension on Plasma Potassium Levels in Humans Anesthetized with Nitrous Oxide, Thiopental, and Succinylcholine, J. Appl. Physiol.* 11: 93 (July) 1957.)

**OXYGEN INSUFFICIENCY** The resistance of experimental animals (white rats, mice and dogs) to acute oxygen deprivation was greatly increased by the administration of a complex preparation of 10 water-soluble vitamins: thiamin, riboflavin, nicotinic acid, folic acid, para-aminobenzoic acid, pantothenic acid, and vitamins B<sub>6</sub>, B<sub>12</sub>, P, and C. Higher nervous activity in these animals after oxygen deprivation was affected less than in controls. Observations and personal observations on subjects in the pressure chamber (5,000 m.), and also investigations of the rate of visual perception showed the complete effectiveness of the simultaneous administration of the vitamin complex before the ascent to that height. (Kosmolinski, F. P.: *Effect of a Polyvitamin Complex on Resistance of Organism to Oxygen Insufficiency, Vopr. pitan.* 15: 15, 1956.)

**OXYGEN ABSORPTION** At temperatures of 18-20 C. and at rest the amount of oxygen absorbed through the skin varied between 94 and 220 ml./hour. During moderately strenuous physical work 370 ml./hour were absorbed; this increased to 650-786 ml./hour as the temperature of the air was raised. (Petrun, N. M.: *Absorption of Oxygen Through Skin at Different Temperatures of Air, Vrac. Delo* 8: 853, 1956.)

**TRACHEAL ASPIRATION** Following endotracheal aspirations of secretions in anesthetized patients, there occurs frequently a decrease in oxygen saturation

of the blood. In order to prevent this a double lumen catheter has been devised, one lumen for aspiration of secretions and one lumen for insufflation of oxygen. The cross section of the aspiration duct is 4 mm.<sup>2</sup>, and that of the oxygen insufflation channel is 1.5 mm.<sup>2</sup> This allows insufflation of flow rates exceeding 15 liters per minute. The lumen of the aspiration duct is siliconized; its aperture is at the tip of the catheter, while the aperture of the insufflation part is 6 cm. above the tip. (Binet, J. P., and Bochet, M.: *Double Lumen Catheter for Endotracheal Aspiration and Oxygen Insufflation*; *Presse méd.* 65: 1557 (Sept. 28) 1957.)

**OPEN CARDIAC SURGERY** Hypothermia and extracorporeal circulation employing a pump-oxygenator offer two distinct methods for accomplishing direct vision cardiac surgery. Neither method is ideal, but each has characteristic advantages and disadvantages. Although a variety of extracorporeal oxygenator systems are in use, the bubble method and the screen or rotating-disk type of apparatus have received widest clinical trial. The semipermeable membrane and homologous lungs have had some clinical application, and recently a promising method involving use of the animals' own lungs has been studied experimentally. Aside from technical problems related directly to operation of the pump, special consideration must be given to the control of heparinization and body temperature. Operative mortality has not been prohibitive, but it is high, and the inherent technical and mechanical difficulties are sufficiently serious to preclude use of total cardiopulmonary by-pass methods for those lesions which may be treated effectively by existing closed techniques. (Keown, K. K., Gilman, R. A., and Bailey, C. P.: *Open Heart Surgery: Anesthesia and Surgical Experiences*, *J. A. M. A.* 165: 781 (Oct. 19) 1957.) (Reviewer: This is an unusually clear, concise and valuable review article. The fine bibliography is arranged with regard to historical development.)

**METABOLIC ACIDOSIS** Metabolic acidosis due to decreased circulation occurring during open-heart operation is not

manifested during operation because of excess removal of carbon dioxide by the anesthetist and the heart-lung machine. The greatest fall in pH was found to occur within the first six hours after the hypotensive episode. This postoperative metabolic acidosis could be alleviated by slow intravenous administration of 45 mEq. of sodium bicarbonate per kilogram of body weight. (Ito, I., Faulkner, W. R., and Kolff, W. J.: *Metabolic Acidosis and Its Correction in Patients Undergoing Open-Heart Operation*, *Cleveland Clinic Quart.* 24: 193 (Oct.) 1957.)

**POSTOPERATIVE CARE** A qualified team in constant attendance is mandatory for patients after open-cardiotomy, especially for children. (1) Minimal metabolism to lessen cardiac work is established by avoiding strain or emotional stress, administration of sedatives and regulation of body temperature. (2) Cardiovascular stability is maintained by close balance between blood lost and that transfused, hemoglobin and hematocrit determinations, frequent recordings of blood pressure, pulse and electrocardiographic tracings, and determinations of the clotting times. (3) Optimal respiratory function is maintained by use of cold humidified oxygen, prevention of significant laryngeal edema, aspiration of pulmonary secretions, chest roentgenograms, gastric tube to prevent distention, slight underhydration, and prevention of metabolic acidosis. (Knight, H. F., Jr., and Efler, D. B.: *Postoperative Care of Open-Cardiotomy Patient*, *Cleveland Clinic Quart.* 24: 204 (Oct.) 1957.)

**SHOCK** A series of 22 patients undergoing major surgery developed a period of hypotension from less than 1 hour to 8 hours' duration of 25 per cent or more reduction in systolic blood pressure. The concentration test as a measure of renal tubular function and the urea clearance test as a measure of glomerulo-tubular function were performed periodically to determine the effect on renal function. No change in renal function occurred in 13 patients in whom hypotension was present for a period of one hour or less. The other 9 showed alterations in the urea