

(DL_{CO}), alveolar-arterial oxygen tension difference while breathing air ($A-aDO_2$) and physiologic deadspace ratio ($V_D/V_T \times 100$) were studied preoperatively, immediately following open-heart surgery, on the first postoperative day, and 20 days later in 12 patients with severe mitral stenosis. Average values for DL_{CO} were 9.8, 4.1, 5.6, and 6.9 ml/min/mm Hg, respectively. Total $A-aDO_2$ values were 31, 52.5, 49.8, and 35.2 mm Hg. The corresponding non-shunt components of the $A-aDO_2$ were 25.3, 38.6, 40.9, and 23.8 mm Hg. $V_D/V_T \times 100$ values were 47, 53, 56, and 49 per cent. Following cardiac bypass the distribution of pulmonary blood flow is uneven, as evidenced by a decrease in pulmonary diffusing capacity, an increase in physiologic deadspace, and an increase in the non-shunt component of $A-aDO_2$. (Kaplan, S. L., and others: *Effect of Cardiac By-pass on Pulmonary Diffusing Capacity*, *J. Thorac. Cardiovasc. Surg.* 57: 738 (May) 1969.)

OXYGEN TOXICITY Pure isobaric oxygen therapy for 72 hours produces pulmonary hyaline membranes in guinea pigs. Coagulation profiles were made for guinea pigs after 48 hours of inhalation of pure oxygen to determine whether hyaline-membrane formation is preceded by changes in the clotting or fibrinolytic systems. Statistically significant decreases in total profibrinolysin, free profibrinolysin and fibrinolytic inhibitor were found. Other changes in the coagulation profile suggested partial activation of the clotting mechanism. These results demonstrate that deficient fibrinolysis precedes the development of hyaline membranes, and suggest a causal relationship between hyaline membrane disease and deficient fibrinolysis. In neonatal and adult human hyaline membrane disease, deficient fibrinolysis has been demonstrator after the membranes already have been formed. (Phillips, L. I., and others: *Fibrinolytic Deficit in Oxygen Intoxicated Guinea Pigs*, *Aerospace Med.* 40: 744 (July) 1969.)

RESPIRATORY CARE The Bird Mark 7 respirator (IPPB) effectively treated 42 episodes of severe acute respiratory failure in 32 patients with chronic obstructive pulmonary disease. Mean P_{CO_2} decreased within 24 to

48 hours by 32.5 mm Hg, from the pre-IPPB level of 80.8 mm Hg. No patient died in the first three days, only six patients (14 per cent) died within the first two weeks, 33 episodes ended with removal from the respirator, and 21 patients (50 per cent) ultimately were discharged from the hospital. Pressure-cycled respirators can be as effective as any other type of respirator, including those that are volume-cycled, if they are properly used and the results monitored by frequent arterial blood gas and pH measurements, with due regard to regulation of inspiratory, expiratory and oxygen flows. (Billingham, M., and Eldridge, F.: *Use of a Pressure-cycled Respirator (Bird) in Respiratory Failure Due to Severe Obstructive Pulmonary Disease*, *Ann. Intern. Med.* 70: 1121 (June) 1969.)

HOT-WATER DISINFECTION Oxygen therapy equipment (Bird respirator, nebulizers, Bennett monitoring spirometer and anesthetic bags and face masks) used on patients with respiratory infections (*Staphylococcus aureus*, *Pseudomonas pyocyaneus*, diphtheria) were dismantled, washed with commercial detergent, then immersed for 15 minutes in an instrument-boiler sterilizer with a thermostat set to keep the water between 80 and 85 C. Cultures taken after the equipment was removed from the water and allowed to cool showed complete disappearance of gram-negative bacilli, with only "skin flora organisms" growing in a few cases. This latter was attributed to handling of the equipment with bare hands after sterilization. The authors concluded that this was an efficient, economical, rapid and safe method for disinfecting such equipment. (Roberts, F. J., Cockcroft, W. H., and Johnson, H. E.: *A Hot Water Disinfection Method for Inhalation Therapy Equipment*, *Canad. Med. Assoc. J.* 101: 30 (July) 1969.)

OXYGEN EFFECTS ON THE EYE Increased oxygen pressure results in two overlapping groups of effects on the eye. These overlapping groups have "physiologic" or "pathologic" consequences. Included in the former category are retinal vessel constriction and reduction in the peripheral visual field. They can be expected to occur immediately