

piration is mainly thoracic and later in most cases changes into abdominal. Respiratory rate is 44-49 per minute and tends to be higher in male than in female babies. The amplitude of respiratory excursions is at first (during the first few hours of life) maximal when the baby is in the dorsal or left lateral decubitus; later in dorsal decubitus and with slightly raised upper part of the body. (*Kvezereli-Kopadze, N. N.: Respiratory Dynamics of the Newborn Under Physiological Conditions, Shorn, Trud. Inst. Okhr. Mater. i Dets. 7: 325, 1956.*)

AIRWAY RESISTANCE Measurements of airway resistance and lung volume were made on 26 normal subjects. Studies were made at different degrees of inflation of the lung. Airway conductance, the reciprocal of resistance, was approximately linearly related to the degree of inflation of the lungs. Airway resistance in children is three to five times that of adults. This is related more to differences in lung volume than to differences in age. The small airways in which resistance to flow is located may be as distensible as the lung as a whole. (*Briscoe, W. A. and Dubois, A. B.: The Relationship Between Airway Resistance, Airway Conductance and Lung Volume in Subjects of Different Age and Body Size, J. Clin. Invest. 37: 1279 (Sept.) 1958.*)

CARDIOINHIBITORY REFLEX Activation of the pulmonary stretch reflex by such maneuvers as breath-holding, pressure breathing, and artificial respiration may in turn produce a vagal response characterized by cardiac arrhythmias and arrest. One of the mechanisms which may induce cardiac arrest during surgery is stimulation of the pulmonary stretch reflex with artificial respiration. Small preoperative doses of atropine (0.4 mg.) are inadequate to abolish the vagal effect of the pulmonary stretch reflex, although therapeutic doses of atropine (0.75-1.2 mg.) will abolish this cardioinhibitory response in susceptible individuals. (*Dermksian, G., and Lamb, L. E.: Syncope in a Population of Healthy Young Adults, J. A. M. A. 168: 1200 (Nov. 1) 1958.*)

HYPOXIA Pulmonary function was appraised in twenty patients with restrictive lung disease in which emphysema was not a sig-

nificant factor. The primary causes of hypoxia were: presence of poorly ventilated alveoli, perfusion of blood through nonventilated areas of the lung, and right to left shunts in the heart. Alveolar-capillary block involving the pulmonary membrane was an insignificant factor. A 32 per cent oxygen mixture increased the inspired oxygen tension over 70 mm. of mercury and overcame an alveolar-capillary membrane block when that was the primary difficulty. A 32 to 40 per cent oxygen mixture did not restore to normal an unsaturation caused by shunting at or near the alveolar level, especially with exercise. Breathing 100 per cent oxygen tended to obscure shunting at or near the alveolar level, especially at rest, because of the large increase in oxygen pressure in the plasma. Also, at rest, the blood flow tended to be through the better ventilated areas as compared to exercise. The use of 32 to 40 per cent oxygen mixed with nitrogen differentiated shunting at the alveolar level from true diffusion difficulties with increased resistance for the transfer of oxygen through the pulmonary membrane. These studies indicate that the alveolar-capillary membrane block is not a significant factor in the hypoxia of pulmonary fibrosis, emphysema, and most of the related conditions. The true cause is primarily one of obstruction in which the air breathed does not get down to the alveolar level where the blood gas exchange occurs. (*Motley, H. L.: Studies on the Nature of Hypoxia With and Without Cyanosis in Chronic Pulmonary Disease, Geriatrics 13: 617 (Oct.) 1958.*)

HYPOVENTILATION Thirty-eight patients were studied postoperatively—30 following thoracic surgery and 8 following abdominal surgery. Fourteen patients in the thoracic series showed a drop in pH of at least 0.10 unit. A significant difference between the 14 acidotic and 16 non-acidotic patients was found in the minute ventilation and alveolar ventilation. Minimal to moderate degrees of hypoxia were noted and spiograms demonstrated hypoventilation and respiratory irregularities. (*Hood, R. M., and others: Hypoventilation, Hypoxia and Acidosis Occurring in the Acute Postoperative Period, J. Thoracic Surg. 36: 729 (Nov.) 1958.*)