

younger subjects. Changes in pulmonary dynamics with advancing age are more likely due to changes in the compliance or muscle power of the thorax rather than to changes in the pressure volume characteristics of the lungs themselves. (Permutt, S., and Martin, H.: *Static Pressure-volume Characteristics of Lungs in Normal Males*, *J. Appl. Physiol.* 15: 819 (Sept.) 1960.)

UNILATERAL HYPOXIA When the dependent lung was allowed to breathe 10 per cent oxygen and the upper lung breathed air during spontaneous ventilation in the lateral position no shift of blood from the hypoxic lung to the air-breathing lung occurred. This is in contrast to an identical study done with the subjects supine where there was a significant shift of blood from the hypoxic lung to the air-breathing lung. The hemodynamic changes caused by unilateral hypoxia were probably not sufficient magnitude to overcome hydrostatic and other factors governing the relative distribution of blood between the lungs in the lateral position. (Aborelius, M., and others: *Influence of Unilateral Hypoxia on Blood Flow Through Lungs in Man in Lateral Position*, *J. Appl. Physiol.* 15: 595 (July) 1960.)

NEGATIVE PRESSURE BREATHING The application of continuous negative pressure of -10 to -30 cm. of water to the airway during spontaneous respiration caused a decrease in functional residual capacity. Residual volume remained unchanged, but the expiratory reserve volume decreased to 44 per cent of control value with -10 cm. of water and to 12.5 per cent of control with -30 cm. of water. Resistance to air flow increased, probably due to narrowing of the conducting passages at the small resting lung volumes achieved. Engorgement of bronchial vessels may have contributed to increased resistance. The compliance of the lung was not altered by the application of continuous negative pressure. (Ting, E. Y., Hong, S. K., and Rahn, H.: *Lung Volumes, Lung Compliance, and Airway Resistance during Negative Pressure Breathing*, *J. Appl. Physiol.* 15: 554 (July) 1960.)

INTRAPULMONARY MIXING Intermittent positive pressure breathing does not improve the over-all efficiency of ventilation as measured by Becklake's lung clearance index in normal subjects and only to a small degree in emphysematous patients. A voluntary increase in tidal volume comparable to that produced by intermittent positive pressure breathing affected the changes in the over-all efficiency of ventilation in all normal patients and in those emphysematous patients who could do so. The beneficial effects of intermittent positive pressure breathing on the intrapulmonary mixing of gases are due to the increase in tidal volume obtained and are of particular value in those patients who are unable to maintain an effective tidal volume or to increase it. (Torres, G., Lyons, H. A., and Emerson, P.: *Effects of Intermittent Positive Pressure Breathing on Intrapulmonary Distribution of Inspired Air*, *Amer. J. Med.* 29: 946 (Dec.) 1960.)

POSTOPERATIVE ATELECTASIS The effect of positive pressure breathing and nebulization of bronchodilators and detergents on the incidence of postoperative atelectasis has been studied in 100 consecutive patients undergoing upper abdominal surgery with endotracheal cyclopropane anesthesia with succinylcholine supplement. Alternate patients were treated with intermittent positive pressure on inspiration with oxygen and nebulization of 0.25 ml. of Isuprel in 1 to 200 dilution with 2 ml. of Alevaire. The presence or absence of atelectasis was determined solely by chest roentgenograms. In the 50 patients receiving inhalational therapy, plate-like atelectasis developed in 14, segmental atelectasis in 10, and lobar atelectasis in one. In the 50 patients not given inhalational therapy, plate-like atelectasis developed in 20, segmental atelectasis in 4, and lobar atelectasis in 2. There was no apparent advantage of intermittent positive pressure breathing in prophylaxis against postoperative atelectasis. The patients treated with routine postoperative management of early ambulation, frequent change of position, coughing, and deep breathing did as well as the specially treated group. (Becker, A., and others: *Treatment of Postoperative Pulmonary Atelectasis*

with Intermittent Positive Pressure Breathing, *Surg. Gynec. Obstet.* 111: 517 (Oct.) 1960.)

POTASSIUM AND DIGITALIS Buffered isotonic potassium phosphate was administered to dogs before digitalization. An average of 16.6 mEq. of the cation was necessary to produce atrioventricular block. The same procedure was carried out after administration of toxic doses of digitoxin. In this group an average amount of only 7.2 mEq. was necessary to produce atrioventricular block, and sino-atrial block and arrest were frequent. Infusion of potassium into animals intoxicated with digitoxin produced atrioventricular block not only with less potassium but also at a lower plasma level. There was also a steeper rise of the plasma potassium level in this group of experiments. These studies suggest that potassium should be given with caution to digitalis-intoxicated patients in whom the intoxication is manifested by abnormalities of atrioventricular conduction. (Fisch, C., Martz, B. L., and Friebe, F. H.: *Enhancement of Potassium-Induced Atrioventricular Block by Toxic Doses of Digitalis Drugs*, *J. Clin. Invest.* 39: 1885 (Dec.) 1960.)

SYMPATHOADRENAL SUPPRESSION Cyclopropane or halothane produce a significant reduction in the degree of tachycardia and arterial hypertension caused by carbon dioxide inhalation in man. The degree of suppression was greater during halothane anesthesia. Cardiac arrhythmias seldom occurred in conscious persons during carbon dioxide inhalation. In anesthetized patients, they were found frequently and proved to be a more reliable guide as to the presence of respiratory acidosis than was any hemodynamic function. Halothane may reduce the sympathoadrenal response to hypercarbia through central autonomic action. Postcyclopropane hypotension may be marked because the sympathoadrenal response to hypercarbia is well preserved and possibly enhanced during cyclopropane administration. (Price, H. L., and others; *Modification by General Anesthetics (Cyclopropane and Halothane) of Circulatory and Sympathoadrenal Responses to Respiratory Acidosis*, *Ann. Surg.* 152: 1071 (Dec.) 1960.)

ADRENAL SUPPRESSION Alterations in the adrenocortical response after five weeks of prednisone therapy (20 mg. daily) were evaluated. A moderate reduction in response of the adrenal cortex was noted within 10 to 14 days after the onset of prednisone therapy. An additional three weeks of therapy produced a marked suppression of adrenal output of 17-hydroxycorticosteroids in response to either surgical stress or ACTH. The changes in adrenocortical function induced by prednisone were associated with only minimal evidence of adrenocortical atrophy pathologically. (Marks, L. J., Chute, R., and Sallade, R. L.: *Rapid Functional Suppression of Adrenal Cortex Due to Prednisone Therapy*, *New Engl. J. Med.* 264: 10 (Jan. 5) 1961.)

CARBOHYDRATE METABOLISM The administration of epinephrine during ether anesthesia in man produced a greater than normal rise in blood glucose and less than expected elevations in pyruvate, lactate and citrate levels. The administration of insulin during ether anesthesia failed to depress blood glucose and inorganic phosphorus levels. Increased sensitivity to insulin was observed in one patient during thiopental anesthesia. The data suggest that ether may alter the cellular transfer and phosphorylation of glucose in a manner not fully explained by the reflex release of endogenous epinephrine. The administration of tolbutamide during ether anesthesia depressed both blood glucose and serum inorganic phosphorus levels. This effect of tolbutamide suggests that it may have a glycostatic effect independent of its effect on insulin secretion. (Henneman, D. H., and Vandam, L. D.: *Effect of Epinephrine, Insulin, and Tolbutamide on Carbohydrate Metabolism During Ether Anesthesia*, *Clin. Pharmacol. Ther.* 1: 694 (Nov.-Dec.) 1960.)

CATECHOLAMINES Many types of drugs alter the rate of metabolism of the catecholamines. A study has been made of the effect of certain sympathomimetic amines on the rate of disappearance of epinephrine and norepinephrine in the intact mouse. The drugs tested included ephedrine, amphetamine, tyramine, pargyline and synephrine. The findings indicated that these amines do in-