

were: levarterenol, epinephrine, mephentermine, metaraminol, isoproterenol and methoxamine. Flow to various portions of the body may vary, being increased in one area and decreased in another. All of the drugs except methoxamine caused an increase in cardiac output. Small doses of drugs which stimulate vasodilator receptors (epinephrine, isoproterenol, and mephentermine) promote blood flow through the abdominal aorta. Large doses reduce the flow through the distal aorta. (Skinner, D. B., Camp, T. F., and Austen, W. G.: *Use of Vasopressor Agents to Increase Somatic Blood Flow*, *Arch. Surg.* 94: 610 (May) 1967.)

WEIGHT LOSS Blood volume and weight loss were correlated in patients with obesity and in those with cancer. Obese patients had an average weight loss of 30 per cent and blood volume decrease of 6 per cent. Patients with cancer showed a direct relationship between weight loss and decreased red cell volume. These changes in intravascular volume following weight loss in cancer patients are thought to result from malnutrition and not specifically from cancer. Thus, the measurement of blood volume in debilitated patients adds little information to any evaluation. The simple measurement of hemoglobin and hematocrit is usually a better reflection of red cell mass. If intravascular volume determinations are used, it is better to use the circulating red cell volume as a reflection of the patient's intravascular changes. Routine preoperative blood transfusions should be reserved for patients with acute blood loss or those with definite anemia. (Ebert, P. A., and Benson, D. W.: *Weight Loss, Cancer and Intravascular Volume*, *Surg. Gynec. Obstet.* 124: 987 (Nov.) 1966.)

BLOOD TRANSFUSION The overall incidence of isosensitization was investigated in 1,250 patients who had received a total of 3,461 units of blood. The number of transfusions per patient ranged from 1 to 40 with an average of 2.8 units per patient. Ten definite cases of isosensitization and 3 probable cases of isosensitization were found—an incidence of approximately 1 per cent. Expert technical services in the field of blood trans-

fusion will become more and more important. Transfusion of blood in emergencies without a pretransfusion cross-match test performed by an expert blood transfusion technologist will become increasingly hazardous. (Grobbehaar, B. G., and Smart, E.: *The Incidence of Isosensitization Following Blood Transfusion*, *Transfusion* 7: 152 (March) 1967.)

DEXTRANS Dextran 40 (molecular weight 40,000) is compared with Dextran 70 (molecular weight 70,000). They are polymers of glucose. Dextran 70 is more effective and longer lasting for blood volume expansion. Dextran 40 is most valuable for reducing blood viscosity and for improving the microcirculation. Both have antithrombogenic effects. (Atik, M.: *Dextran 40 and Dextran 70*, *Arch. Surg.* 94: 664 (May) 1967.)

DEXTRAN-INDUCED ANAPHYLAXIS Anaphylactic reactions to polysaccharide plasma expanders such as dextran are rare but with their increasing utilization must go an increasing awareness of their potential antigenicity. Dextran is a collective name for a series of polysaccharides with high dextrorotation. The majority of bonds linking saccharide units are of the alpha 1:6 type. The molecule lends itself readily to hydrolysis. Dextran 75, the clinical dextran most commonly used, has a molecular weight of 75,000. Clinically, dextran has found widespread usage in the treatment of shock and recently in the treatment of thrombophlebitis. In both situations, great emphasis is placed on increasing the flow and decreasing sludging of blood. It has been shown that higher-molecular-weight dextrans are more antigenic in man. This report details a harmful reaction following the administration of dextran 75. The patient demonstrated immediate wheal and flare skin reactivity, bentonite-flocculating antidextran activity, and positive Prausnitz-Küstner transfer reaction to dextran N-279, a high-molecular-weight dextran. The dextran 75 associated with this anaphylactic reaction elicited only mild wheal and flare skin reactivity and was apparently incapable of sensitizing bentonite particles over a wide dose range. It is hypothesized that the patient was previously sensitized by food dextrans or crossreacting

polysaccharides present in the microorganisms responsible for his several previous episodes of pneumonia. (Bailey, G., and others: *Dextran-Induced Anaphylaxis*, J.A.M.A. 200: 889 (June) 1967.)

ELECTROLYTES It has been postulated that the lowering of serum calcium concentration following the administration of phosphate is the result of the precipitation of calcium phosphate salts in the body. If this is true, then a phosphate infusion should tend to lower serum calcium concentration in all subjects, regardless of the presence or absence of those endocrine organs normally involved in the regulation of serum calcium. A simultaneous increase in calcium excretion should not account for the fall in serum calcium occurring during phosphate infusion and the degree by which serum calcium concentrations fall should be a function of the extent to which the solubility product of some calcium phosphate salt is exceeded during the infusion of phosphate. This hypothesis was tested by administering isotonic sodium-potassium phosphate to normal subjects, patients with hypoparathyroidism and patients with hypercalcaemia due to hyperparathyroidism or cancer. Phosphate infusion lowered serum calcium in all subjects without causing simultaneous losses of calcium from the body. Serum calcium concentrations fell in direct proportion to the magnitude by which the CaHPO_4 solubility product was exceeded during phosphate infusion. The subsequent response to the fall in serum calcium levels induced by phosphate infusion appeared to depend upon the presence and responsiveness of the parathyroid glands. (Hebert, L. A., and others: *Studies of the Mechanism by which Phosphate Infusion Lowers Serum Calcium Concentration*, J. Clin. Invest. 45: 1886 (Dec.) 1966.)

Respiration

BRONCHODILATOR RESPONSE

Patients with chronic obstructive lung disease may appear to derive no benefit from bronchodilator therapy because dilatation of small airways is masked by collapse of segmental bronchi on forced expiration during measurement of peak expiratory flow rate and one

second forced expiratory volume. This masking may be removed by measuring peak inspiratory flow rate and vital capacity before and after bronchodilator therapy. Such measurements made in 30 patients with chronic obstructive disease showed that there was significant relief of spasm in small peripheral bronchioles by bronchodilator therapy. (Saunders, K. B.: *Bronchodilator Response Patterns in Patients with Chronic Airways Obstruction: Use of Peak Inspiratory Flow Rate*, Brit. Med. J. 1: 399 (May) 1967.)

HELIUM-OXYGEN MIXTURES It has been previously noted that patients with chronic airway obstruction differ in their responses to inhalation of helium-oxygen mixtures. The present study was designed to explain this observation by evaluating the effect of inhalation of helium-oxygen mixtures on pulmonary mechanics in dogs whose airways were partially obstructed at different sites. Intravenous infusion of histamine, which produces distal airway constriction (presumably at the alveolar duct level) caused an increase in non-elastic work of breathing and a decrease in lung compliance during air breathing. Inhalation of 78 per cent helium-22 per cent oxygen did not diminish work of breathing. Partial mechanical occlusion of the trachea caused an increase in nonelastic work of breathing during inhalation of air, but this effect was minimal or absent during inhalation of He-O_2 mixture. Similar results occurred with vagal stimulation, which constricts larger bronchi. It was concluded that helium reverses the effects of proximal airway constriction on airway resistance but has little influence upon that resulting from distal airway obstruction. Results can be explained by a consideration of laws governing flow of fluids in branching tubes. (Barnett, T. B.: *Effects of Helium and Oxygen Mixtures on Pulmonary Mechanics During Airway Constriction*, J. Appl. Physiol. 22: 707 (April) 1967.)

A-a OXYGEN DIFFERENCE Alveolar-arterial oxygen differences (A-aD_{O_2}) were measured in 12 healthy men during breathing of 6 oxygen mixtures which provided inspired oxygen concentrations from 21 to 100 per cent. A-aD_{O_2} increased significantly when al-