

DRUG REACTORS Groups of reactors and nonreactors, as determined by their responses to drug administration in the laboratory, also have characteristically different scores on external tests unrelated to the responses occurring in the laboratory. These test scores can be used to predict future responses with more accuracy than chance would allow. (Joyce, C. R. B.: *Consistent Differences in Individual Reactions to Drugs and Dummies*, *Brit. J. Pharmacol.* 14: 512 (Dec.) 1959.)

TRANQUILIZERS A dramatic and frightening extrapyramidal convulsive syndrome characterized by opisthotonus, oculogyric crisis, torticollis, and trismus is being seen in infants and children given phenothiazine tranquilizers for anti-emesis. The particular drugs in question are prochlorperazine (Compazine) chlorpromazine (Thorazine) promazine (Sparine) and perphenazine (Trilafon). Such seizures are sudden in onset, generally subside only to recur several times over a 12-hour period. Emphasis is placed on the proper use of these drugs as anti-emetics in children. (Cohlan, S. Q.: *Convulsive Seizures Caused by Phenothiazine Tranquilizers*, *G. P.* 21: 136 (Feb.) 1960.)

NEWBORN INFANT Newborn infants have instability of temperature regulation, respiratory and cardiac reserve, low concentration of plasma protein and transient hypothermia. Hypothermia as low as 32.2 to 35 C. does not have any untoward effect on the recovery of the newborn but may allow the development of sclerema with its attendant high mortality in the premature infant. The full-term infant requires 45 cc. of intravenous fluids per pound of body weight except in instances of severe dehydration while the premature infant requires only a total of 25 to 30 cc. of parenteral fluids per pound of body weight per day. The newborn infant undergoing a surgical operation should be on the "dry side" as far as parenteral fluids are concerned. Five per cent glucose meets the usual needs well but parenteral saline should not be given to the premature surgical patient except when severe electrolyte deficiency exists. The energy requirement of a premature infant is 80 calories and of a full-term

infant is 50 calories per pound of body weight per day. Minimal handling of the premature is essential to his recovery. (Benson, C. D., and Martner, E. E.: *Pre-operative and Post-operative Care of the Newborn*, *Surgical Clinics of N. America* 39: 1569 (Dec.) 1959.)

PARENTERAL NUTRITION Since emulsions are comprised of heterogeneous phases, they present problems not encountered with amino acid or carbohydrate solutions. No conclusive evidence exists as to optimum particle size distribution in these emulsions, either from the standpoint of physical stability or physiological suitability. An emulsion which of itself is stable may form large oil droplets *in vivo*. These are then filtered out by various tissues. With the exception of phosphatide-stabilized emulsions, none has been satisfactory for extensive clinical use to date. A moderate incidence of reactions has occurred: fever, nausea and vomiting, chills, and the "colloid reaction." In its severe form, the "colloid reaction" is characterized by chest or back pain, cyanosis, flush, apprehension and dyspnea. It can occur with the infusion of as little as a few milliliters of fat emulsion. Within 10 to 20 minutes of such a reaction, an infusion can be continued without recurrence. This reaction has been prevented by pre-infusion of diluted emulsion or stabilizer without the fat. Febrile reactions have been thought to be related to excessive fat oxidation, impaired heat regulation, pyrogens, hemolysis, or the particulate nature of the emulsion. None has been proved. The daily protein requirements for the average man is at least 0.5 Gm. of protein per kilogram. Protein depletion may result in decreased urine output, edema, weakness, asthenia, lassitude, delayed wound healing, decreased liver resistance, and increased susceptibility to trauma. Parenterally administered nitrogen can be given effectively in the form of protein hydrolysates, amino acid mixtures, plasma and whole blood; but hydrolysates have advantages of low cost and adequate supply. For best utilization, all essential amino acids should be given simultaneously and at moderate infusion rates. Prior or simultaneous infusion of carbohydrate decreases urinary nitrogen loss. Positive nitrogen balance can usually be ob-

tained by providing sufficient amino acids and a moderate supply of calories. While sodium, chloride, potassium, magnesium and phosphate mixtures have been used in place of physiological saline, and while this is certainly in keeping with principles of good nutrition administered by any route, exact requirements for electrolytes under conditions of complete parenteral nutrition have not been defined. (Geyer, R.: *Parenteral Nutrition, Physiol. Rev.* 40: 150 (Jan.) 1960.)

INTRACELLULAR WATER Water contributes about two-thirds of the body weight, and nearly three-quarters of this water is in cells. The fact that most tissues are rich in potassium, while extracellular fluid is rich in sodium suggests that the two primary subdivisions of body water are as distinct chemically as topographically. Moreover, different soluble substances introduced into the body become diluted to different degrees further indicating that body water is not in a single homogeneous liquid phase, but is subdivided by partitions which some substances penetrate more readily than others. It is not known how water crosses biological membranes under the influence of gradients of activity, but the consensus of published opinion is that most mammalian cells conduct their fluid exchanges in osmotic equilibrium, without active transport of water. External osmotic pressure is important for the regulation of cell volume chiefly because it determines how such water shall be associated with a given quantity of intracellular solute. Cellular metabolism is equally important chiefly because it determines how much intracellular solute there shall be. In the intact animal with metabolism proceeding steadily, extracellular osmolarity controls the water balance of the cells. Hence, thirst and water diuresis, which rather precisely guard against excessive or deficient levels of extracellular osmolarity may be regarded as mechanisms controlling the volume of extracellular fluid. Since they do this by stabilizing an extracellular osmolarity which is mostly due to sodium salts, they also set the stage for the regulation of extracellular fluid volume by adjustments of the renal excretion of sodium. For so long as its osmolarity is held constant, the volume of extracellular fluid must be pro-

portional to the amount of sodium which it contains, and this depends upon how much of the daily intake the kidneys retain. Hence, the kidneys directed in ways which largely remain to be elucidated are able to regulate the volume of water inside the cells by controlling the excretion of water, and the volume outside the cells by controlling the excretion of sodium. A detailed consideration of these possibilities is presented. (Robinson, J. R.: *Metabolism of Intracellular Water, Physiol. Rev.* 40: 112 (Jan.) 1960.)

PULMONARY EDEMA The action of the digitalis glycosides (acetylstrophanthidin, ouabain and digitoxin) was tried before, during and after the onset of experimental pulmonary edema. Pulmonary edema was produced by five different methods in 227 rabbits, 87 rats and 16 dogs. No useful effect of either rapid or slow-acting digitalis glycosides was demonstrated. In previous experiments, pulmonary edema had been prevented by the use of morphine, phenobarbital and chloral hydrate, or by the use of sympatholytic drugs or the inhalation of alcohol vapor. Digitalis may act on the right overloaded ventricle, thus increasing rather than decreasing the severity of pulmonary edema. (Testelli, M. R., Musiker, S., and Luisada, A. A.: *Effect of Digitalis Glycosides in Paroxysmal Pulmonary Edema, J. Appl. Physiol.* 15:83 (Jan.) 1960.)

EMPHYSEMA Eighty-five per cent of all patients with pulmonary emphysema exhibit recognizable electrocardiographic abnormalities. Occasionally they are present in the absence of pulmonary impairment but invariably are present with symptomatic disease. The earlier and most common change is that the P wave will be prominent and exhibit an axis close to plus 90 degrees. As the emphysema progresses the standard and precordial leads acquire S waves and the P waves become larger. (Littman, D.: *The Electrocardiographic Findings in Pulmonary Emphysema, Am. J. of Cardiology* 5: 339 (March) 1960.)

BLOOD TRANSFUSION Every transfusion is a potential source of transmission of disease. About one in every 300 units of blood transmits viral hepatitis. Two to four per cent