

myocardial infarction is related to the degree of pulmonary venous hypertension and resulting pulmonary vascular congestion. (*Fillmore, S. J., and others: Blood-Gas Changes and Pulmonary Hemodynamics Following Acute Myocardial Infarction, Circulation 45: 1972.*)

### Respiration

**ABDOMINAL SURGERY AND PULMONARY COMPLICATIONS** A study from a Canadian Veterans' Hospital revealed that although the mortality rate for major abdominal surgery in patients more than 70 years old remained unchanged between 1950 and 1966, the morbidity fell significantly during the period from 1962 to 1966 (postoperative complications occurred in 62 per cent of patients between 1950 and 1959, but in only 46.5 per cent of patients between 1962 and 1966). The decline in the morbidity rate was attributed to a decrease in postoperative wound and intra-abdominal infections. Despite special efforts to diagnose and treat for the presence of pulmonary disease pre- and postoperatively, there was no reduction in the morbidity (28 per cent) or mortality (4.5 per cent) caused by pulmonary complications in the 1962-1966 period. Pulmonary complications were twice as common in patients with pre-existing pulmonary disease. Pre-existing cardiovascular or genitourinary disease was not associated with increased complications in those organ systems. (*Robins, R. E., and Budden, M. K.: Major Abdominal Surgery in Patients over 70 Years of Age: Results during 1962 to 1966 Compared with Those during 1950 and 1959, Can. J. Surg. 15: 1-6, 1972.*)

**ABSTRACTER'S COMMENT:** It is of interest that an intensive program of preoperative breathing exercises, early recognition and "mechanical" treatment of postoperative pulmonary complications, and liberal use of sputum cultures as a guide to the choice of postoperative antibiotics decreased the incidence of gram-positive while increasing that of gram-negative pulmonary infections. The change in the bacterial spectrum of pulmonary infections probably contributed to the sustained incidence of respiratory infections and persistence of the morbidity/mortality figures. The next step will necessitate increased vigilance for early and vigorous treatment of gram-negative infections

### Metabolism

**HYPERALIMENTATION, HYPOPHOSPHATEMIA AND COMA** High-caloric intravenous hyperalimentation of three malnourished patients was associated with the appearance of weakness, paresthesias, and decreases in serum inorganic phosphorus to less than 1 mg/100 ml. The symptoms appeared on the fifth day of hyperalimentation, with two patients developing seizures and coma, and with one death following the onset of coma. Although the serum inorganic phosphorus was restored and maintained at normal levels in one patient, it did not prevent recurrence of the neurologic symptoms upon resumption of hyperalimentation.

Neither hyperosmolarity nor ketoacidosis occurred. The etiology of the neurologic symptoms is unclear, and the association with hypophosphatemia may be only temporal. (*Silvis, S. E., and Paragas, P. D.: Paresthesias, Weakness, Seizures and Hypophosphatemia in Patients Receiving Hyperalimentation, Gastroenterology 62: 513-520, 1972.*)

### Renal Function

**REGULATION OF HYDROGEN ION CONCENTRATION** Several theories regarding hydrogen-ion secretion are examined in this excellent review. The authors, using a new method for studying tubular secretion of hydrogen ion, present evidence that hydrogen-ion secretion is best explained by a "pump-leak system." Hydrogen ion is actively pumped from tubular cell to lumen; this mechanism appears to be gradient-limited and opposed by passive back-flux. The latter is sensitive to changes in intratubular buffer concentration and pH. Results of these studies indicate that our current concepts of hydrogen-ion secretory capacity of the tubule, the relationship between  $\text{Na}^+$  reabsorption and  $\text{H}^+$  secretion, and the source of secreted  $\text{H}^+$  will soon be changed. (*Malnic, G., and Giebisch, G.: Mechanism of Renal Hydrogen Ion Secretion, Kidney International 1: 280-296, 1972.*)

**ABSTRACTER'S COMMENT:** This article is part of a "Symposium on Acid-Base Homeostasis." Articles included cover a variety of clinical problems associated with disturbances in acid-base balance. Reading of the entire series is recommended for an up-to-date evaluation of the state of our knowledge in this important field.