

plained by increase in anatomical deadspace with age. A single forced exhalation prior to the nitrogen washout test used to measure uniformity of distribution of inspired gas significantly increased nonuniformity in elderly men but not in younger subjects. At large tidal volumes no age-dependent differences in intrapulmonary gas distribution occurred. It is postulated that lungs of old men are more susceptible to localized alveolar collapse than are the lungs of young men. (Edelman, N. H., and others: *Effects of Respiratory Pattern on Age Differences in Ventilation Uniformity*, *J. Appl. Physiol.* 24: 49 (Jan.) 1968.)

### Kidney

**RENAL FUNCTION** Renal blood flow, function and oxygen utilization were studied in dogs chronically bled to hematocrits between 12 and 21 per cent. Total renal blood flow was not changed despite a marked increase in cardiac output, indicating that the kidneys did not show the vasodilatation of other organ systems in response to decreased oxygen supply. Glomerular filtration and sodium resorption were reduced markedly although sodium resorption in relation to filtrated load was unimpaired. Total oxygen consumption remained normal. Since the sodium resorption process is the major oxygen consumer in the kidney, the decrease in sodium resorption probably accounts for the normal total oxygen consumption noted. The reduced glomerular filtration rate may have resulted from preglomerular vasoconstriction and decreased postglomerular resistance, due to either vasodilation or decreased blood viscosity, or both. The blood-tissue  $PO_2$  gradient was increased, indicating greater extraction of oxygen. Thus, the anemic dogs were able to maintain normal renal function by decreasing the work load (glomerular filtration and sodium resorption) and by more efficient extraction of oxygen. (Aperia, A. C., and others: *Renal Adaptation to Anemia*, *Circ. Res.* 22: 489 (April) 1968.)

**FETAL RENAL FUNCTION** Effects of infusion of hydrochloric acid (HCl) were studied in near-term fetal and newborn lambs. In both fetus and neonate, HCl infusion produced the expected changes in blood acid-base characteristics. However, urinary pH and excretion of titrable acid and ammonia did not change significantly until the acid dose per unit weight was about three times that required in adult animals. Cardiovascular effects of the acid load were negligible. The fetal and early neonatal kidney is limited in its ability to acidify the urine and to excrete acids, and in the fetus the placenta probably excretes the largest portion of the acid load. Other studies show that in the human the ability to acidify the urine and excrete acid is acquired a few days after birth. In view of the minimal cardiovascular response to acid infusion, arterial pH may not be the best indicator of neonatal physiological status. (Vaughn, D., and others: *Fetal and Neonatal Response to Acid Loading in the Sheep*, *J. Appl. Physiol.* 24: 135 (Feb.) 1968.)

### Muscle

**TUBOCURARINE** Tubocurarine chloride was given on a body-weight basis to 30 patients undergoing surgery and the electromyograph was monitored. No precise relationship was found between the dose of tubocurarine administered and the degree of paralysis observed. Reversal of neuromuscular blockade was then accomplished with incremental doses of neostigmine methylsulfate. The optimum dose of neostigmine required to establish complete reversal of severe neuromuscular blockade due to tubocurarine was about 4 to 5 mg. This reversal could be achieved satisfactorily even when the time interval between the relaxant and antidote was only a few minutes. (Bridenbaugh, P. O., and Churchill-Davidson, H. C.: *Response to Tubocurarine Chloride and Its Reversal by Neostigmine Methylsulfate in Man*, *J.A.M.A.* 203: 541 (Feb.) 1968.)