

Respiration

CHRONIC BRONCHITIS Thirty-seven patients with chronic bronchitis had severe obstructive and restrictive ventilatory impairment, with hypoxemia and hypercapnia. Despite the fact that chronic bronchitis is thought to be an obstructive lung disease, the changes in blood-gas tensions and spirometric measurements in these patients seemed to be more closely related to impairment in lung volumes. The hypercapnia of the bronchitic patient was associated with a low FVC (which measures specifically restrictive ventilatory impairment) and did not correlate with the FEV₁ (which measures specifically obstructive ventilatory impairment). (Palmer, K. N. V., and Diamant, M. L.: *Relative Contributions of Obstructive and Restrictive Ventilatory Impairment in the Production of Hypoxaemia and Hypercapnia in Chronic Bronchitis*, *Lancet* 1: 1233 (June) 1968.)

PROLONGED MECHANICAL VENTILATION Nineteen of 100 patients requiring prolonged mechanical ventilation developed water retention without evidence of cardiac failure. This was associated with radiologic evidence of pulmonary edema, as well as a gain in weight (average 2.6 kg), an increase in alveolar-arterial oxygen tension difference (mean 127 mm Hg), a 29 per cent decrease in vital capacity, a reduction in estimated compliance of 31 per cent, a 13 per cent fall in hematocrit, and a decrease in serum sodium of 5.8 mEq/l. The institution of negative water balance by reduced water intake and diuretics reversed these changes. Radiologic improvement was usually prompt. The etiology of the pulmonary edema observed may be related to a relative water overload, a rise in antidiuretic hormone production or subclinical cardiac failure. From a clinical standpoint, these observations stress the importance of careful and repeated monitoring of intake and output, including water contribution from nebulizers and daily body-weight measurements. Further, one should suspect that pulmonary extravascular water may be increasing if there are increases in the alveolar-arterial oxygen tension differences, increases in the ratio of wasted to total ventilation, or reduc-

tions in estimated compliance and vital capacity, as well as the radiologic appearance of diffuse pulmonary edema. Failure to recognize this syndrome early may lead to a continuous downhill course, including progressive difficulty in ventilation and oxygenation. (Sladen, A., Laver, M. B., and Pontoppidan, H.: *Pulmonary Complications and Water Retention in Prolonged Mechanical Ventilation*, *New England J. Med.* 279: 448 (Aug.) 1968.)

MECHANICAL VENTILATION IN NEWBORNS Forty infants with respiratory failure were treated with mechanical ventilation. Of the 28 infants considered salvable only 12 survived, giving an overall survival rate of 30 per cent and a survival rate among salvable infants of 43 per cent. A worthwhile reduction in mortality can be achieved with mechanical ventilation among infants who have some prospect of survival, but no infant should be mechanically ventilated unless he cannot survive without this treatment. Early age at the start of mechanical ventilation, the need for high inspired O₂ concentration early in the illness, and the need for high airway pressures are unfavorable factors affecting prognosis. (Adamson, T. M., and others: *Mechanical Ventilation in Newborn Infants with Respiratory Failure*, *Lancet* 2: 227 (Aug.) 1968.)

OXYGEN THERAPY IN THE NEWBORN Serial arterial blood-gas tensions were measured in 370 babies, 203 of whom had the respiratory distress syndrome (RDS). The mortality in the RDS babies was 32.5 per cent. The incidence of cerebral palsy was low, and only two cases of retrolental fibroplasia occurred despite prolonged oxygen therapy at concentrations exceeding 40 per cent in many of the survivors. The only satisfactory method of managing oxygen therapy in babies with RDS is to measure PaO₂. Umbilical-artery catheterization provides a convenient method for sampling arterial blood. Umbilical arterial P_{O₂} should never be allowed to exceed 100 mm Hg. At this tension, any right-to-left shunt through the ductus arteriosus would be unlikely to elevate the retinal PaO₂ above 160 mm Hg. (Robertson, N. R. C., and others: *Oxygen Therapy in the Newborn*, *Lancet* 1: 1323 (June) 1968.)