

ficial nose" may add 250 ml. water/24 hours to the inspired air and is suitable for normal lungs, but in respiratory insufficiency the increase in dead space and increase in airway resistance is a definite drawback. Steam added to the inspired air is not recommended because it condenses. A drip of isotonic sodium bicarbonate solution into the tracheostomy is better, but atomizing water by compressed air in the form of mist is best. (Larus, C. D.: *Reflections on the Humidity of Inspired Gas Mixtures in its Importance to the Patient* (German), *Thoraxchirurgie* 12: 351 (Jan.) 1965.)

### PEDIATRIC INHALATION THERAPY

The best method of treatment of an absolute humidity deficit is nebulization. Ultrasonic aerosol generators have an efficiency fifteen times greater than the best mechanical ones but this efficiency can cause overloading of the circulation if the vaporizer is not regulated with care. Infants cannot manage sodium chloride as well as children or adults, so sterile water, in spite of its irritant properties, should be used in preference to saline for humidification. Isoproterenol still is the best bronchodilator. In a pediatric air-oxygen aerosol mist tent the temperature of the environment should be controllable; humidification should be 100 per cent in the micron size 1 to 8 with no particles over 10 microns which would "rain out" and wet the patient. Everything in contact with the patient should either be disposable or autoclavable. (Allan, D.: *Recent Advances in Pediatric Inhalation Therapy*, *Surg. Clin. N. Amer.* 44: 1611 (Dec.) 1964.)

**PULMONARY COMPLIANCE** Pulmonary compliance was studied on 100 patients with mitral stenosis. As a rule the increase in respiratory work represented a change in the elastic behavior of the lungs known as "the stiff lung." Residual volume was enlarged in about 50 per cent of the patients mainly due to chronic vascular congestion. In about 40 per cent of the patients respiratory work against viscous resistance was increased (obstructive ventilatory defect). Inhalation of a bronchodilator of the isoproterenol type resulted in a highly significant

fall in total work against viscous resistance. This was considered as evidence of bronchospasm secondary to hemodynamic changes. Exertional dyspnea in mitral stenosis was considered to be related to increased pulmonary rigidity. The restrictive ventilatory impairment with spastic bronchoconstriction was an important factor in pathogenesis of cardiac asthma. (Hamm, J., and Schölmerich, P.: *Mechanics of Breathing in 100 Patients With Mitral Stenosis* (German), *Klin. Wschr.* 42: 1108 (Nov. 15) 1964.)

**PULMONARY CIRCULATION** Measurements of pulmonary diffusing capacity for carbon monoxide, membrane diffusing capacity, and pulmonary capillary blood volume were made in 18 normal subjects and in 18 patients with mitral valve disease. The mean value for pulmonary diffusing capacity in patients with mitral valve disease was significantly lower than normal, owing mainly to impairment of membrane diffusing capacity. This impairment of membrane diffusion capacity may be due in part to reduction in surface area available for diffusion by obliteration of part of the capillary bed and to thickening of the alveolar-capillary membrane. Increasing pulmonary vascular pressures and pulmonary vascular resistance are associated with diminution in pulmonary capillary blood volume. (McCredie, R. M.: *Diffusing Characteristics and Pressure-Volume Relationships of the Pulmonary Capillary Bed in Mitral Valve Disease*, *J. Clin. Invest.* 43: 2279 (Dec.) 1964.)

**CARDIAC ARREST** Proper use of drugs can increase the incidence of successful cardiac resuscitation after arrest. Intracardiac adrenaline acts as a powerful stimulant during cardiac standstill and, in addition, converts fine ventricular fibrillation to a coarser type, more responsive to electrical defibrillation. Routine use of intravenous sodium bicarbonate combats the severe metabolic acidosis accompanying cardiac arrest. Lidocaine is useful when ventricular fibrillation or ventricular tachycardia tends to recur. Analeptics are contraindicated, since they invariably increase oxygen requirements of already hypoxic cerebral tissues. The following outline is useful in re-