

catheter is advocated as a simple, safe and effective means of reducing postoperative pulmonary complications caused by retained secretions. The catheter is inserted through the cricothyroid membrane by means of a 17 gauge needle and left in place for periods of time up to several weeks with no discomfort to the patient. The method is useful in patients who cannot or will not cough voluntarily. However, no data are presented on results in the 200 patients so treated, other than to state that complications due to the method were absent. (Myers, R. N., Shearburn, E. W., and Haupt, G. J.: *Prevention and Management of Pulmonary Complications by Percutaneous Polyethylene Tube Tracheostomy*, *Amer. J. Surg.* 109: 590 (May) 1965.)

INFANT TRACHEOSTOMY By comparing the findings in 62 infants receiving tracheostomy in the period from 1936 to 1953 with those of 86 during the period from 1954-1963, a clear-cut trend was away from the operation for acquired inflammatory lesions and toward operation for congenital malformation and neoplasms of the airway, with an overall increase in total incidence in recent years as indications have broadened and skepticism for the procedure lessened. Morbidity associated with the procedure has been lowered through improved surgical techniques, including preoperative establishing of a patent airway by means of a bronchoscope to avoid emergency tracheostomies, and better postoperative management. Complications do still occur and the most common continues to be delayed extubation due to a variety of causes such as granuloma formation, stenosis of trachea or larynx and vocal cord paralysis; acquired inflammatory disease seldom leads to this difficulty. (Holinger, P. H., Brown, W. T., and Maurizi, D. G.: *Tracheostomy in the Newborn*, *Amer. J. Surg.* 109: 771 (June) 1965.)

INTERSTITIAL FLUID PRESSURE

Pressure-volume curves of interstitial fluid spaces were determined in anesthetized dogs by sampling of pressures in subcutaneously implanted perforated capsules. Pressures within these capsules were recorded by means of inserting into them a needle attached to a Statham pressure transducer. Intracapsule

pressure was assumed to be equal to interstitial pressure. Control interstitial pressures were found to be in the range of minus 4 to minus 9 mm. of mercury in both awake and anesthetized dogs. However, persistent immobilization of the animals led to a gradual pressure rise toward zero of about 1 mm of mercury per hour, which trend reversed rapidly with reinstitution of activity. By means of appropriate fluid administration in both isolated limbs and intact animals, pressure-volume curves were constructed, indicating very low compliance of the interstitial spaces so long as the capsule pressure was in the negative pressure range but a many-fold increase in compliance once ambient pressure was exceeded. These findings explain the "safety factor" which protects against early development of edema, since even in the presence of a low plasma protein oncotic pressure there must be a concomitant large rise in normally negative interstitial pressure (about 7 mm. of mercury increase) before the tissues begin to collect appreciable volumes of fluid. Once this critical point is reached, edema fluid forms rapidly and in large amounts. (Guyton, A. C.: *Interstitial Fluid Pressure: II. Pressure-Volume Curves of Interstitial Space*, *Cir. Res.* 16: 452 (May) 1965.)

PULMONARY SHUNTING Large physiologic shunts resulting in hypoxemia were found in all patients breathing air 20 to 24 hours after cardiac surgery. The average shunt on 100 per cent oxygen was 13 per cent of cardiac output. The most important single cause of these shunts was diffuse atelectasis, usually not visible on roentgenograms. Extracorporeal circulation had no apparent effect in increasing physiologic shunting. The increase in shunting on room air, as compared with oxygen, was significant in the group of patients who had mitral valve replacement or open mitral valvuloplasty. This shunting caused by uneven distribution of ventilation in relation to perfusion, was equivalent to a right to left shunt of 12.5 per cent of the cardiac output. The combination of atelectasis and maldistribution resulted in the mean arterial oxygen tension on air of this group being only 53 mm. of mercury. (Hedley-Whyte, J., and others: *Pulmonary Ventilation-Perfusion Relations After Heart*