Literature Briefs

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Briefs were submitted by Drs. John Adriani, C. M. Ballinger, Norman Bergman, Peter P. Bosomworth, Gaylord Buchanan, M. T. Clarke, Martin Helrich, J. J. Jacoby, S. J. Martin, S. R. Oech, R. E. Ponath, Alan Randall, Wallace Ring, P. H. Sechzer, and H. S. Rottenstein.

Briefs appearing elsewhere in this issue are a part of this column. The "Briefs" of Russian Literature are taken from Excerpta Medica's "Abstract of Soviet Medicine," which is supplied through the Public Health Service of the National Institutes of Health.

THYROID REVIEW In a well-outlined, easily read, lucid manner, a review is presented of the chemistry, synthesis and fate of the thyroid hormones; regulation of thyroid function; laboratory diagnostic tests of thyroid function and disease; factors affecting thyroid function; physiological and pharmacological actions of the thyroid hormones, and management of hyperthyroid and hypothyroid patients from the standpoint of the anesthesiologist. (*Boutros, A. R.: Anesthesia and the Thyroid Gland: A Review, Can. Anaesth. Soc. J. 8: 586 (Nov.) 1961.*)

DIFFUSING CAPACITY Measurements of the diffusing capacity of the lungs for carbon monoxide were made by both the single breath and steady state method with end-tidal samples as a measure of alveolar carbon monoxide in normal subjects and in patients with cardiac or respiratory disease. In normal subjects at rest the steady state diffusing capacity was about 75 per cent of the single breath diffusing capacity. The steady state diffusing capacity increased with increasing tidal volume, so that at maximal tidal volume, the steady state diffusing capacity was approximately the same as the single breath diffusing capacity. The increase of diffusing capacity on exercise was greater than could be accounted for by the increased ventilation on exercise. An increase of respiratory rate without an increase in tidal volume did not increase diffusing capacity. The patients with cardiac or respiratory disease were considered in three groups. Those with normal pulmonary gas mixing had a steady state diffusing capacity which was 74 per cent of the single breath diffusing capacity at rest. Those with impaired pulmonary gas mixing, but no clinical evidence of emphysema, had a steady state diffusing capacity which was 66 per cent of the single breath figure. The difference between these two groups may be due, in part, to the errors in end-tidal sampling in patients with uneven pulmonary ventilation. In the third group, those patients with emphysema showed no relationship between the single breath and the steady state diffusing capacity. In the absence of emphysema either method gives a satisfactory figure for diffusing capacity. (*Apthorp, G. H., and Marshall, R.: Pulmonary Diffusing Capacity: A Comparison of Breath-holding and Steady State Methods Using Carbon Monoxide, J. Clin. Invest. 40: 1775 (Sept.) 1961.*)

PANLOBULAR EMPHYSEMA Panlobular emphysema is as common as centrilobular emphysema, the latter having the primary lesion associated with the respiratory bronchioles and the former characterized by diffuse overdistension of the air ducts and alveoli with consequent dissolution of their walls and formation of microbullous spaces up to and exceeding 500 microns in diameter. The centrilobular type is more common in the upper lung field, the panlobular type in the lower lung. The diffuse type may not be associated with pigmentation, but, when present, the pigment is often located in areas of alveolar wall fenestration. The centrilobular type shows dense pigmentation in the affected areas. While many cases are associated with other abnormalities such as kyphoscoliosis

(where the thorax is in the normal mid inspiratory position at rest), with chronic laryngeal or bronchial obstruction, and with bronchiectasis and other states, many others are not secondary to air flow obstruction, but may be due to the deep penetration of harmful dusts causing air sac dissolution. There is an associated reduction in arterial and arteriolar vessels, advanced cases having a 70 to 80 per cent reduction in normal vascular architecture. Right ventricular hypertrophy occurs, its severity being correlated with the extent of the disease except in gibbous deformities where it may be associated with vascular root distortion rather than with vascular occlusion as a result of the distension-dissolution process. Resistance to air flow in these lungs was from three to ten times normal and the average flow rate about one-half normal. *(Wyatt, J. P., and Sweet, H: The Morphogenesis of Panlobular Emphysema, Amer. Rev. Resp. Dis. 83: 426 (Mar.) 1961.)*

COR PULMONALE The most common cause of cor pulmonale is emphysema, though many cases of tuberculosis and bronchiectasis which would formerly have died of infection now develop it. In pulmonary embolism, myocardial infarction and valvular heart disease, mortality is more than twice as high in patients with emphysema. Cor pulmonale may be secondary to both hypoxia and pulmonary hypertension. The hypertension is much more marked in the latter group, though it is present in the other. Arterial oxygen saturation is always below normal in cor pulmonale, and if below 85 per cent and accompanied by marked polycythemia and carbon dioxide retention, probably indicates a primary pulmonary etiology of right heart failure. Electrocardiogram and roentgenograms may not aid in the diagnosis. During exacerbations of emphysema with bronchitis, renal ischemia also may occur. Long term treatment of emphysematous patients with acetazolamide may be of benefit partly by reducing hypercapnia and partly by aiding diuresis. Digitalis, diuretics, specifically indicated antibiotics, tracheal suction, tracheostomy, aerosolized bronchodilators and the cautious use of oxygen with or without mechanical assistance to ventilation, avoidance of drugs depressant to respiration, and small repeated phlebotomies all can contribute to the treatment of cor pulmonale. *(Muschenhein, C.: The Growing Importance of Pulmonary Heart Disease as a Cause of Congestive Cardiac Failure, Amer. Rev. Resp. Dis. 83: 475. (Apr.) 1961.)*

RESPIRATORY ACIDOSIS Administration of Ringer's lactate solution to dogs during acute respiratory acidosis results in a greater ion secretion by the kidney and, therefore, greater conservation of bicarbonate bound base than after administration of 5 per cent glucose and water. Surgical trauma superimposed on the acute respiratory acidosis resulted in no further changes in this response. *(Hutchin, P., McLaughlin, J. S., and Hayes, M. A.: Renal Response to Acidosis During Anesthesia and Operation: III. Maintenance of Homeostasis in Acute Respiratory Acidosis During Intravenous Infusion of Ringer's Lactate and 5 per cent Glucose in Water, Ann. Surg. 154: 161 (Aug.) 1961.)*

ASPIRATION Prior to induction of ether anesthesia, 150 patients were given 1 ml. of methylene blue and instructed to distribute this evenly within the oral cavity. One hundred patients were given open drop ethyl chloride-ether anesthesia; 50 received ether-nitrous oxide-oxygen anesthesia using endotracheal intubation. Following surgery, bronchoscopic examination was performed. Twenty-seven per cent of the patients who had received open drop ether anesthesia and 16 per cent of those who had their trachea intubated showed aspiration. *(Klimpel, L.: Bronchoscopic Examinations for Aspiration following Narcosis, Der Anaesthesist 10: 310 (Oct.) 1961.)*

RESPIRATORY UNIT Respiratory care is necessary in a variety of illnesses in which respiratory failure is a transient but potentially lethal episode. Tracheostomy should usually be performed early. A cuffed rubber tube is used, care being taken not to over-inflate the cuff. Humidification is necessary. The control of IPPR is based on clinical observation of the patient's condition, helped by measuring the respiratory volume. In cases of doubt it is helpful but not essential to have