BRIEFS FROM THE LITERATURE

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PULMONARY RECEPTORS To clarify the presence and nature of pressoreceptors in the pulmonary vascular bed, the left lung of the intact dog was perfused with normal saline under variable pressures and flow rates. About 6 to 7 seconds after acute hypertension was induced in the pulmonary vascular bed, bradycardia, systemic hypotension and depression of respiration occurred simultaneously. The presence of an intact vagus seems necessary as the response was not elicited following ipsilateral (but not contralateral) vagotomy. Also required is an impedance to flow in the distal pulmonary venous bed, suggesting that the majority of the receptors are located in the distal vasculature. (*Downing, S. E.: Reflex Effects of Acute Hypertension in Pulmonary Vascular Bed of Dog, Yale J. Biol. & Med. 30: 43 (Sept.) 1957.*)

PULMONARY EMPHYSEMA Changes in minute volume, *p*H, oxygen and carbon dioxide tension in arterial blood, physiologic dead space and alveolar ventilation were determined following the inhalation of pure oxygen in 20 normal subjects and in 20 emphysematous patients. In normal subjects, the changes are in the range of normal. Following oxygen inhalation by emphysematous patients, the minute volume decreased; the oxygen saturation was or became normal; the carbon dioxide tension increased with concomitant decrease in *p*H; the respiratory dead space increased in proportion to the reduced alveolar ventilation. Progressive increase in the respired oxygen concentration and use of artificial respirators that create a positive pressure during the initial phase of the inspiration are suggested as therapeutic measures. (*De Coster, A., and Denolin, H.: Respiratory Changes Following Inhalation of Pure Oxygen in Normal Subjects and in Patients with Pulmonary Emphysema, Rev. fr. clin. biol. 2: 129 (Feb.) 1957.*)

PHYSIOLOGIC RESPIRATOR Design of an electronic device for the control of mechanical respirators in accordance with the physiologic need of the individual is presented. Primary muscles of respiration stimulated by the respiratory center itself were found to be most effective in triggering the electronic device, but even minor accessory muscles such as the platysma or the ala nasi have been used successfully for many hours in anesthetized animals. Partially paralyzed patients have been able to rely upon the electronic control for their respiration for periods of more than 24 hours at a time, including long periods of normal sleep during which it was not necessary to adjust the skin electrodes or the controls of the electronic circuit. (*Batson, R., and others: Electronically Controlled Respirator, Science 126: 819 (Oct. 25) 1957.*)

OBESITY DYSPNEA The basic pathologic physiology of the well-documented clinical entity "cardiorespiratory syndrome of extreme obesity" is apparently the increased mechanical work of breathing caused by large deposits of fat on the chest wall and in the abdomen. Alveolar hypoventilation leads to arterial hypoxemia and hypercapnia. The hypoxemia in turn produces cyanosis, secondary polycythemia and pulmonary hypertension, usually with electrocardiographic evidence of right ventricular overload. The hypercapnia leads to somnolence and decreased sensitivity of the respiratory centers which further aggravates the hypoventilation. In addition, congestive heart failure may be present, and usually there is a severe systemic hypertension. Adequate reduction of weight is accompanied by complete disappearance of this cardiorespiratory syndrome. (*Lillington, G. A., Anderson, M. W., and Brandenburg, R. O.: Cardiorespiratory Dysfunction and Polycythemia in Patients with Extreme Obesity, Proc. Staff Meet. Mayo Clin. 32: 585 (Oct. 16) 1957.*)

RESUSCITATION Employing a mask suitable for use in contaminated atmospheres, expired air resuscitation was evaluated in 16 anesthetized curarized human subjects. Alveolar carbon dioxide and oxygen concentration of both operator and subject, the air flow and tidal volume, each subject's arterial oxygenation by ear oximeter, and each subject's arterial oxygen saturation, carbon dioxide tension and pH were maintained within normal limits. Moderate hyperventilation by the donor increases his expired oxygen concentration and lowers his expired carbon dioxide concentration to provide a gas having a composition satisfactory for artificial ventilation. (*Greene, D. G., and others: Expired Air Resuscitation in Paralyzed Human Subjects, J. Appl. Physiol. 11: 313 (Sept.) 1957.*)

COST OF RESPIRATION By measuring oxygen consumption when dead space was increased it was possible to measure the efficiency of the muscles of breathing. In the normal subject the oxygen cost of breathing was about 0.25 ml. oxygen per liter of ventilation up to ventilations of 40 l./minute, while at a ventilation of 80 l./minute it was approximately 0.6 ml./l. In the patient with emphysema the respiratory muscles were consuming between 2 to 3 ml./l. at a ventilation of 10 l./minute and the consumption per liter increased markedly with slight increases of ventilation. (*Campbell, E. J. M., Westlake, E. K., and Cherniack, R. M.: Simple Methods of Estimating Oxygen Consumption and Efficiency of Muscles of Breathing, J. Appl. Physiol. 11: 303 (Sept.) 1957.*)

POTASSIUM ALTERATIONS Plasma potassium levels remained unaltered during normocapnia and moderate hypercapnia (pH 7.19, mean arterial blood carbon dioxide tension, 73.2 mm. Hg). A statistically significant decrease in plasma potassium was noted in hypocapnia. Plasma potassium tended to rise during the post hypercapneic carbon dioxide washout. (*Petersen, B. D., and others: Influence of Alterations in Arterial Blood pH and Carbon Dioxide Tension on Plasma Potassium Levels in Humans Anesthetized with Nitrous Oxide, Thiopental, and Succinyldicholine, J. Appl. Physiol. 11: 93 (July) 1957.*)

OXYGEN INSUFFICIENCY The resistance of experimental animals (white rats, mice and dogs) to acute oxygen deprivation was greatly increased by the administration of a complex preparation of 10 water-soluble vitamins: thiamin, riboflavin, nicotinic acid, folic acid, para-aminobenzoic acid, pantothenic acid, and vitimins B_6, B_{12}, P, and C. Higher nervous activity in these animals after oxygen deprivation was affected less than in controls. Observations and personal observations on subjects in the pressure chamber (5,000 m.), and also investigations of the rate of visual perception showed the complete effectiveness of the simultaneous administration of the vitamin complex before the ascent to that height. (*Kosmolinski, F. P.: Effect of a Polyvitamin Complex on Resistance of Organism to Oxygen Insufficiency, Vopr. pitan. 15: 15, 1956.*)

OXYGEN ABSORPTION At temperatures of 18–20 C. and at rest the amount of oxygen absorbed through the skin varied between 94 and 220 ml./hour. During moderately strenuous physical work 370 ml./hour were absorbed; this increased to 650–786 ml./hour as the temperature of the air was raised. (*Petrun, N. M.: Absorption of Oxygen Through Skin at Different Temperatures of Air, Vrac. Delo 8: 853, 1956.*)

TRACHEAL ASPIRATION Following endotracheal aspirations of secretions in anesthetized patients, there occurs frequently a decrease in oxygen saturation