

work is needed before assessing the value of plasma transfusions for maintaining the level of the proteins in the plasma of children who are ill for a long time, but our findings suggest that they might be useful. It must be remembered that the salt content of plasma is approximately equivalent to that of normal saline." 10 references.

J. C. M. C.

THOMPSON, S. A., AND BIRNBAUM, C. L.: *The Phenomenon of Asphyxial Resuscitation. I. Resuscitation with Inert (Asphyxiating) Gas in Advanced Asphyxia.* Surg., Gynec. & Obst. 74: 1078-1083 (June) 1942.

"Resuscitation in asphyxia is of considerable and mutual interest to physiology and medicine. From the practical standpoint, the problem is important in the operating room—cessation of respiration and of circulation or both—in industrial surgery—electric shock, cave-in, gases and fumes—in civilian life—carbon monoxide asphyxia, drowning—and military surgery—crushing injuries, air raid casualties, war gas poisoning, thoracic trauma. Yet, much controversy still exists on methods of resuscitation. For this reason, we have carried out an experimental investigation in an attempt to clarify this important problem. During this work we observed a phenomenon, to our knowledge hitherto not described, which bears directly on the practical aspects of resuscitation. . . .

"Advanced asphyxia was produced experimentally by tracheal obstruction or inhalation of inert gases—nitrogen, helium. When in such asphyxia the respiration has ceased, it is possible to resuscitate with a suck and blow apparatus, inert gas being used. Such resuscitation is possible in a high percentage of cases and far beyond the period at which spontaneous recovery could occur by discontinuing the asphyxial procedure. With other meth-

ods of resuscitation—manual artificial respiration, rhythmic inflation, rhythmic suction—recovery of the circulation and respiration is the exception rather than the rule. In this phenomenon of asphyxial resuscitation, the heart and circulation recover first, the respiration later. Typically applied in experimental asphyxia, the positive-negative resuscitator, with inert gas, is kept in action until the blood pressure has definitely recovered and spontaneous respiration is taken, when the lungs are let in communication with the atmospheric air. In many instances recovery is also possible by discontinuing the resuscitator after the blood pressure has recovered but before spontaneous respiration has occurred." 3 references.

J. C. M. C.

ALTSCHULE, M. D.; GILLIGAN, D. R., AND ZAMCHECK, N.: *The Effects on the Cardiovascular System of Fluids Administered Intravenously in Man. IV. The Lung Volume and Pulmonary Dynamics.* J. Clin. Investigation 21: 365-368 (May) 1942.

"Studies of the effect of the injection of fluids intravenously on the subdivisions of the lung volume and on the respiratory dynamics have been made in six normal subjects. Injection intravenously of 1800 cc. of isotonic sodium chloride solution, at rates of 39 to 185 cc. per minute, in these normal subjects caused no change in residual air, and only slight decreases in the vital capacity, its components, the reserve and complementary airs, and in the total lung volume. The respiratory minute volume showed no consistent change, although the tidal air was usually decreased. All the changes in pulmonary function found after intravenous infusions in these normal subjects were insignificant. The slight decreases in vital capacity, its components, and the total lung volume, after these massive intravenous

infusions at rapid rates in these normal subjects, are interpreted as due to slight pulmonary vasodilatation associated with temporarily increased blood volume. The fact that changes in pulmonary dynamics and lung volume, following rapid intravenous injections of large volumes of fluid in normal subjects, were at most only slight, in no way alters the clinical concept that when it is necessary to administer fluids intravenously in patients with a tendency toward pulmonary congestion and edema, because of cardiac, pulmonary, central nervous system, or renal disease, these infusions should be given at slower rates and with caution." 14 references.

J. C. M. C.

ALTSCHULE, M. D., AND ZAMCHECK, NORMAN: *Significance of Changes in Subdivisions of the Lung Volume in the Trendelenburg Position*. Surg., Gynec. & Obst. 74: 1061-1064 (June) 1942.

"Comparisons of the volumes of the various subdivisions of the total lung volume in patients in the sitting and in the recumbent position have been made by several authors. . . . No data are available, however, on the changes which occur when the patient assumes the Trendelenburg position. Since this position is employed routinely in certain surgical operations and with great frequency in the treatment of shock and peripheral vascular disease, it appeared desirable to study the effect of the head-down position on pulmonary volume and dynamics. . . . Measurements of the subdivisions of the total lung volume and of the pulmonary dynamics were made in 6 normal subjects in the Trendelenburg, flat, and head-up positions. The residual air was unchanged in the various positions studied, and the vital and total capacities varied only slightly. The vital and total capacities were lowest in the Trendelenburg, inter-

mediate in the flat, and greatest in the head-up positions. Striking changes in reserve and complemental air volumes occurred. The reserve air was lowest in Trendelenburg and greatest in head-up positions; the complemental air varied inversely with reserve air. These changes were interpreted as due to a cephalad shift of diaphragm in patients in head-down position. The changes in the functional residual air are significant in that they afford information on changes in the intrapleural pressure. Decrease of the functional residual air in the Trendelenburg position suggests that changes in intrapleural pressure occur in this position which tend to make respiration more difficult and impair return of venous blood to heart. No consistent changes in respiratory dynamics were observed in the various positions studied." 15 references.

J. C. M. C.

KALTREIDER, N. L.; MENEELY, G. R., AND ALLEN, J. R.: *The Effect of Epinephrine on the Volume of the Blood*. J. Clin. Investigation 21: 339-345 (May) 1942.

"A previous investigation has shown that as a result of a sudden rise in the venous and arterial pressures by exercise there is a prompt and definite decrease in the plasma volume. Further, moderate exertion is accompanied by a proportionate diminution in the blood volume, since the volume of the cells remains essentially the same. Only when the physical activity is severe are new cells added to the circulating volume. During the recovery period, the volume of the blood gradually returns to the resting value. It was suggested that the elevated capillary pressure produced by exercise caused increased filtration of fluid through the capillary walls, which in turn leads to a decrease in the plasma volume, and that the slight increase in cell volume during severe exercise was a result of extru-