

were successfully managed. Upon clinical recovery, a normal acid-base state in both groups I and II was restored within 24 to 72 hours. However, hypoxemia on air persisted up to that time with a mean $P_{a_{O_2}}$ 72 mm. of mercury possibly due to residual atelectasis. *In summary*, status asthemicus in infants and children is usually associated with hypoxemia and metabolic acidosis. Varying degrees of respiratory acidosis develop subsequently in severe cases. Potentially fatal asphyxia, when it occurs, can be reversed with mechanically assisted ventilation.

Studies of the Splanchnic Circulation During Halothane Anesthesia in Man. R. M. EPSTEIN, M.D., S. DEUTSCH, M.D., PH.D., L. H. COOPERMAN, M.D., A. J. CLEMENT, M.B., and H. L. PRICE, M.D., *Department of Anesthesiology, College of Physicians and Surgeons, Columbia University, New York City and the Department of Anesthesiology, University of Pennsylvania, School of Medicine, Philadelphia.* *Method:* Nine healthy male volunteers were studied in the supine position following an overnight fast. The right lobe of the liver was catheterized via an antecubital vein using a Lehman catheter and a femoral artery entered with a Cournand needle. Blood flow was estimated by measuring the hepatic extraction of infused indocyanine green. Splanchnic vascular resistance was calculated as net perfusion pressure divided by blood flow and splanchnic oxygen consumption as A-V oxygen difference multiplied by blood flow. Splanchnic blood volume was estimated using RISA. At the end of the control period, anesthesia was induced with halothane nitrous oxide-oxygen and the trachea intubated following an intravenous dose of succinylcholine (40-60 mg.). Anesthesia was continued with 1.5 per cent halothane in oxygen. Spontaneous respirations were permitted provided that the $P_{a_{CO_2}}$ remained below 45 mm. of mercury; otherwise they were assisted. The principal findings were that splanchnic blood flow was reduced during anesthesia while oxygen consumption remained nearly normal. There was no evidence for splanchnic vasoconstriction, in contrast to findings during cyclopropane administration. When hypercapnia was produced by added CO_2 , vasodilatation and in-

creased hepatic blood flow ensued. (Supported by USPHS Grants GM 09069 and GM 09070.)

Halothane and Hepatic Venous Oxygen Saturation. RUTH I. GATTIKER, M.D., ALAN D. SESSLER, M.D., RICHARD O. LUNDBORG, M.D., and H. J. C. SWAN, M.D., PH.D., *Mayo Clinic and Mayo Graduate School of Medicine, Rochester, Minnesota.* The levels of blood oxygen saturation in the hepatic vein during halothane anesthesia in man have been studied with the intention of providing indications of relative changes in splanchnic blood flow and of defining the oxygen tension to which hepatic tissue is exposed during clinical anesthesia. *Method:* Nine patients scheduled for percutaneous renal arteriography were studied. After premedication with pentobarbital and meperidine, 2 catheters were passed under fluoroscopic control: one into the pulmonary artery, the other into a right hepatic vein. Samples for the determination of oxygen saturation were drawn from these sites. A radial artery needle was inserted and samples were drawn for oxygen tension of the systemic arterial blood. These measurements together with determinations of cardiac output were made with patients breathing air, 100 per cent oxygen, halothane in oxygen or halothane in 40 per cent oxygen and 60 per cent nitrous oxide. *Results:* The arterial oxygen tension averaged 87 mm. of mercury in patients breathing air, approximately 400 mm. of mercury with halothane in oxygen, and 170 mm. of mercury with halothane in 40 per cent oxygen and 60 per cent nitrous oxide. The mixed venous saturation averaged 76 per cent with air, 85 per cent with halothane in oxygen, and 83 per cent with halothane in 40 per cent oxygen and 60 per cent nitrous oxide. The cardiac index averaged 3.9 liters per minute per square meter of body surface in patients breathing air; it fell in 2 of 3 patients breathing 100 per cent oxygen and in all patients under anesthesia. Oxygen saturation in the hepatic vein averaged 73 per cent in air, but fell in all patients under anesthesia: to 69 per cent with halothane in oxygen, and to 50 per cent with halothane in 40 per cent oxygen and 60 per cent nitrous oxide. *Conclusions:* Our study showed that the cardiac indexes decreased in all patients given