

come flaccid, intramuscular pressure falls, venous return diminishes, arterial pressure falls. This is the first, or circulatory, stage of shock. When circulation decreases to a volume-flow insufficient for minimal oxygen requirements, tissue asphyxia develops, capillary walls are damaged, and a leakage of serum from the capillaries sets in. This is the second, or asphyxial, stage of shock.

In hemorrhage, loss of hemoglobin causes asphyxia. Death in hemorrhage is due to a pathological process initiated by asphyxia. Decrease in carbon dioxide and bicarbonates, an "acarbica," is probably concerned in pathological changes in "shock." If after the loss of blood has ceased, minute-volume of breathing gradually increases, death ensues; if minute-volume decreases, the animal survives.

The paper exhibits the advantages and the disadvantages of a prolonged and unremitting "point of view."

A bibliography of sixty-seven references is appended.

A. S.

TAYLOR, N. B., AND MOORHOUSE, MARGARET S.: *The Use of Isinglass as a Blood Substitute in Haemorrhage and Shock*. *Canad. M. A. J.* 49: 251-262 (Oct.) 1943.

These authors find isinglass to be a safe and effective transfusion material. The supply is almost unlimited and it can be manufactured relatively cheaply on a large scale. The efficiency of a transfusion material depends upon the size and shape of its molecule, in relation to the "pores" of the capillary walls. The particle size is also influenced by conditions in vivo, namely the pH, temperature, electrolyte concentration, and the presence of other colloids and organic compounds. Collagen molecules have much greater length than breadth thus pass less freely from the circulation than do larger but globular molecules as the molecules of serum albumin.

The true criterion of the effectiveness of a blood substitute is the restoration of the blood volume and its maintenance to the time when fluids produced by natural processes can take its place. Isinglass disappears from the circulation at a fairly rapid rate but not, apparently, until it has been replaced by plasma protein. There is evidence that the injected protein isinglass is later utilized by the body in the manufacture of plasma protein. Immediate effects of isinglass injection are about the same as when blood is injected.

A series of experiments done illustrates the value of a solution of isinglass in treatment of shock caused by acute hemorrhage. In the case of shock caused by muscle damage, transfusion either with blood or with isinglass was found to be relatively impotent.

As now prepared, isinglass has a mild pyrogenic action but is free from antigenic action. The livers and kidneys of animals which had received repeated injections of isinglass were found to be normal.

A.

HINGSON, R. A., AND EDWARDS, W. B.: *Continuous Caudal Analgesia: An Analysis of the First Ten Thousand Confinements thus Managed with the Report of the Authors' First Thousand Cases*. *J. A. M. A.* 123: 538-546 (Oct. 30) 1943.

"In our series of 1,150 cases, 1,051, or 91.3 per cent, have been managed through labor and delivery without resorting to any other form of analgesia or anesthesia. . . . The special malleable needle technic with the closed apparatus has been used by us in 1,000 of our cases. . . . In our hands it has given increasing satisfaction with the minimum of complications. . . . We prefer a 1.5 per cent solution of metycaine in isotonic solution of sodium chloride or isotonic solution of three chlorides because of (1) the high analgesic effi-