Literature Briefs

C. Philip Larson, Jr., M.D., Editor

Briefs were submitted by Drs. L. Bachman, A. Boutros, D. R. Buechel, M. Gold, J. Jacoby, F. C. McPartland, J. W. Pender, H. Roe, A. D. Sessler, S. Shnider, and H. Soetens. Briefs appearing elsewhere in this issue are part of this column.

Circulation

TRANSPOSITION Balloon atrioseptostomy was performed in 31 infants with transposition of the great arteries. Improvement in oxygen saturation was immediate, with increases to 64 per cent from 41 per cent in the absence of a ventricular septal defect and to 74 per cent from 53 per cent in the presence of a ventricular septal defect. All 31 infants survived the procedure; 22 are long-term survivors. Advantages of this technique are: 1) no general anesthesia or sedation is required; 2) thoracotomy and cardiotomy are eliminated; 3) it can be performed rapidly in the desperately hypoxic infant too sick to withstand major definitive surgery. (*Rashkind, W. J., and others: Transposition of the Great Arteries, Circulation 38: 453 (Sept.) 1968.*)

MECHANICAL CARDIAC MASSAGE A substernal balloon massager connected to a cyclic pneumatic pulsator has proven useful in resuscitating patients who have sustained cardiac arrest and whose hearts have not responded within a 5-minute period to external massage. The advantages are simplicity, size, portability, and lack of trauma to the intrathoracic and abdominal organs. (*Johnson, A. S., and others: Substernal Cardiac Massage and Assistance, Surgery 63: 800 (May) 1968.*)

PUPIL SIZE IN CARDIAC ARREST The relation of pupil size to cardiac output produced by cardiac massage performed during cardiac arrest was determined in dogs. Following induction of anesthesia with pentobarbitone, cardiac output was measured by dye dilution using indocyanine green. Ventricular fibrillation was then induced and maximal pupil dilation allowed to occur. Internal cardiac massage was then instituted and cardiac output and pupil size were measured. Although cardiac output during massage was only 70 per cent of the prearrest value, this provided sufficient cerebral blood flow to constrict the dilated pupil associated with cardiac arrest. (*Binnion, P., and McFarland, R.: The Relationship Between Cardiac Massage and Pupil Size in Cardiac Arrest in Dogs, Cardiovas. Res. 3: 247 (July) 1968.*)

SHOCK Survival rates may be improved by the use of hyperbaric oxygenation in dogs subjected to hemorrhagic shock. In dogs that received hyperbaric oxygen, low-molecular-weight dextran did not alter survival rates compared with survival rates in animals given dextrose in water. The improvement in survival rates was ascribed to better tissue oxygenation provided by the increased amount of physically-dissolved oxygen in plasma. The better tissue oxygenation is believed to protect cellular integrity in hemorrhagic shock and thereby prevent or minimize the emergence of irreversible shock. (*Navarro, R. U., and Ferguson, C. C.: Treatment of Experimental Hemorrhagic Shock by the Combined Use of Hyperbaric Oxygen and Low Molecular Weight Dextran, Surgery 63: 775 (May) 1968.*)

MORTALITY PREDICTION Forty patients (average age, 75.9 years) underwent preoperative hemodynamic studies, including determination of phasic and mean arterial and venous pressures and indicator dilution curves. Among the parameters calculated from these studies was a new variable termed "physiologic ventricular mixing volume" (V) which was derived from cardiac output, mean transit