

recorded at the time of cardiac arrest in patients receiving rapid, massive transfusions of cold blood. The incidence of cardiac arrest in the operating room was compared in two groups of patients receiving 3,000 ml. or more of citrated bank blood at a rate of 50 ml. or more per minute (the quantity and rate being critical factors). The difference in results was statistically highly significant. Patients transfused with warm blood were warm, dry, and pink, with readily obtainable blood pressure and pulse; cold transfusion patients were cold and shivering, had mottled skin, extreme vasoconstriction, and prolonged anesthesia effects. The advantages of maintaining normothermia are the avoidance of ventricular fibrillation, altered tissue perfusion, and metabolic acidosis. (Boyan, C. F., and Howland, W. S.: *Cardiac Arrest and Temperature of Bank Blood*, *J. A. M. A.* 183: 58 (Jan. 5) 1963.)

**SODIUM PUMP** Isolated red-cell membranes or "ghosts" were used in studying sodium and potassium permeability. Like intact cells, the sodium pump requires extracellular potassium and energy derived from metabolism. The source of energy for the pump has been assessed by incorporating normally impermeable substrates into the ghost interior at the time of the hemolysis. The specific and direct substrate of the pump has been identified as adenosine triphosphate. An enzyme is described which, like the pump, requires both sodium and potassium for activity and is inhibited by cardiac glycosides. The evidence points toward the involvement of this enzyme as an intermediate component of the pump reaction. (Hoffman, J. F.: *Cation Transport and Structure of the Red-Cell Plasma Membrane*, *Circulation* 26: 1201 (Nov.) 1962.)

**ECG LEADS** Rapid attachment of electrocardiographic leads is necessary in emergencies. A piece of brass tubing, whose diameter accepts the electrocardiographic lead, is welded to a towel clip. To attach the lead, simply clip the instrument to the skin. (Derick, J. R.: *Rapid Attachment of Electrocardiographic Leads*, *Arch. Surg.* 85: 911 (Dec.) 1962.)

**POTASSIUM CARRIER** Behavior of potassium when employed as a cardioplegic agent varied with the carrier employed. The following results were obtained in dogs where potassium was transported by (1) 10 per cent glucose in saline—all animals survived cardioplegia and only 12 per cent showed fibrillation during resuscitation; (2) whole blood—50 per cent of dogs fibrillated and 71 per cent returned to normal sinus rhythm; (3) normal saline—75 per cent of dogs fibrillated but normal rhythm was established in all; and (4) 50 per cent glucose—100 per cent of dogs fibrillated and 33 per cent failed to survive. Maintenance of myocardial cell reactivity by proper nutrition facilitates cardiac recovery. (Kaplan, A., and Fisher, B.: *Influence of Different Carriers Upon the Cardioplegic Activity of Potassium Ion*, *Ann. Surg.* 156: 869 (Dec.) 1962.)

**AFTER CARDIAC SURGERY** Anesthesia is continued after open-heart surgery to avoid myocardial depression and arrhythmia from respiratory insufficiency. The patient is placed on the Engström respirator in the recovery room where the blood gases and pH are monitored along with venous and aortic pressures. Minimal anesthesia with the respirator is continued until the electrocardiogram is stable, cardiac output is optimal, arterial oxygen tension is adequate, abnormal acid-base balance has been corrected, and blood volume and peripheral vascular tone no longer fluctuate widely. If necessary, the respirator is used until the next morning. If pulmonary insufficiency is still a problem, a tracheostomy is done and the respirator is used as long as necessary. (Dammann, J. F. Jr., and others: *Management of the Severely Ill Patient after Open-Heart Surgery*, *J. Thor. Cardio. Surg.* 45: 80 (Jan.) 1963.)

**TRAUMATIC SHOCK** Adrenergic and ganglionic blocking agents have been reported to protect against the development of irreversible shock. These agents are thought to protect by blocking sympathetic activity and hence inhibiting reflex vasoconstriction which predisposes to irreversibility. The present experiments were performed to test further this hypothesis by studying the effects of guane-