

transfer of carbon dioxide from blood to lung. There is a fall in diffusing capacity of oxygen of about 5 per cent of the initial value per degree fall in temperature. There is a fall in oxygen consumption of about 6 per cent per degree, and a similar fall in cardiac output. (*Otis, A. B., and Jude, J.: Effect of Body Temperature on Pulmonary Gas Exchange, Am. J. Physiol.* 188: 335 (Feb.) 1957.)

**SHOCK** Bacterial toxins may complicate cases of prolonged traumatic shock. The infection must be controlled or damaged muscle excised. The restoration of normal hemodynamics is likely to be achieved only by the combined use of vasoconstrictors with blood, plasma, or dextran. In many cases of severe injury, blood is lost not only externally, but also into the tissues and around fracture sites. Therefore, unless this later loss is accounted for, a blood deficit may persist in spite of what appears to be adequate replacement. In the late phase of hemorrhagic shock, central cardiac failure may occur, with failure of response to transfusion. Normal function can be restored by administration of sympathomimetic drugs, as metaraminol or noradrenalin. The effect of these drugs on the heart is separate from their vasoconstriction action in the periphery. (*Dudley, H. A. F.: Recent Advances in Understanding and Management of Haemorrhagic and Wound Shock, J. Roy. Coll. Surgeons Edinburgh* 2: 202 (March) 1957.)

**SHOCK** In the differential diagnosis of low blood volume, other causes of signs and symptoms of shock must be considered: (1) paroxysmal cardiac arrhythmia; (2) reflex depression of cardiac activity; (3) chemical or metabolic depression of cardiac function; (4) reflex, chemical or mechanical release or increase in peripheral resistance; (5) interference with venous return to the heart; (6) acute dilatation and failure of either or both chambers of the heart; (7) coronary insufficiency or myocardial infarction; (8) abnormalities of adrenal function and of water, sodium, potassium and protein metabolism. (*Newman, E. V.: Evaluation of Cardiovascular Complications, Ann. New York Acad. Sc. 66: 860 (April) 1957.*)

**BLOOD VOLUME** As much as 1,500 cc. of blood may be present in tissues of the hip and thigh without outward evidence of its presence. In 111 patients with fracture of the hip 46 per cent had a plasma volume deficit of 300 to 2,000 cc. Studies of blood volume alone can provide information about specific needs of patients with regard to amounts and types of blood and blood substitutes, and can indicate the amount of circulating protein required to replenish deficits. (*Barbour, C. M.: Nutritional and Hematological Factors in Geriatric Anesthesia, Ann. New York Acad. Sc. 66: 844 (April) 1957.*)

**BLOOD VOLUME** Blood volume determinations were made by the radioactive isotope (iodinated serum albumin) technique in 24 patients who had craniotomies performed. Studies were before and daily after operation. There is a further insidious blood loss following operation that may be greater in volume than the measured loss at operation. (*Smolik, E. A., and others: Blood Volume Changes in Neurosurgical Operations as Determined by Radioisotopes, Surg. Gynec. & Obst.* 104: 565 (May) 1957.)

**HEART AND BRAIN PERFUSION** The results of perfusing only the heart and brain for right ventriculotomy surgery in 121 experiments are reported. In 11 dogs under normothermic conditions, 7 died, 4 with evidence of cord damage. Eighty-five dogs were cooled to 25-30 C. Thirty-six of the 85 survived. In 27 of the animals, death was due to pulmonary congestion. Twenty-five dogs were cooled to 30-32 C. and lessons learned were applied with only 4 deaths—all of these being due to pulmonary congestion. Blood pressure was maintained at 85 mm. of mercury during perfusion. (*Kay, J. H., and others: Coronary and Carotid Artery Perfusion During Total By-Pass of Heart, J. Thoracic Surg. 33: 265 (April) 1957.*)

**VENTRICULAR FIBRILLATION** Ventricular fibrillation was induced in 48 dogs with a shock through the heart of 10 volts for  $\frac{1}{2}$  to  $\frac{3}{4}$  second. Defibrillation was attempted with electric shocks of various voltages and durations. There was no significant difference in ability to